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FINAL ENVIRONMENTAL IMPACT STATEMENT ON

THE PROPOSED MONTANA POWER COMPANY CLYDE PARK-DILLON 161 KILOVOLT AND 69 KILOVOLT TRANSMISSION LINES

ENERGY PLANNING DIVISION
ALBERT C. TSAO, ADMINISTRATOR
DEPARTMENT OF NATURAL RESOURCES & CONSERVATION
GARY J. WICKS, DIRECTOR

APRIL 1976

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I. Recommendations

The Department of Natural Resources and Conservation is obligated, under the Utility Siting Act (now Major Facility Siting Act), to make recommendations regarding the Montana Power Company's Application for a Certificate of Environmental Compatability and Public Need for the Clyde Park-Dillon 161 kV and 69 kV transmission lines.

The Department's recommendations must be shaped by what the Utility Siting Act requires of the Board before a Certificate of Environmental Compatibility and Public Need can be issued. The most important requirements are contained in Section 70-810, which states, in part, that the Board may not grant such a Certificate ". . . unless it shall find and determine:

(a) the basis of the need for the facility;

(b) the nature of the probable environmental impact;

(c) that the facility represents the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives."

There have been various interpretations of what "need" means in the context of the requirement to determine the ". . . basis of the need for the facility." Some have suggested that "need" simply means the need for electricity. The Department does not believe that this is a legally justifiable interpretation of need.

The whole intent of the Utility Siting Act is obviously more than just meeting the demand for energy. As stated in Section 70-802, the intent is that the ". . . location, construction and operation of power and energy conversion facilities will produce minimal adverse effects on the environment and upon the citizens of this state. . ." (Emphasis added)

Therefore, the Department takes the position that a broader consideration of need is necessary; that it must evaluate whether the citizens of Montana need the proposed facility only after it has considered the need for electricity or energy along with the overall costs and benefits, the environmental impacts, and the availability of reasonable alternatives that have less impact on the environment.

Based on the studies and interpretations of law described above, the Department makes the following recommendations to the Board of Natural Resources and Conservation on the application herein considered. However, with regard to Recommendations II and III, it is important to note that the U.S. Forest Service (USFS) in its March 18, 1976, letter (see Section III) has stated clearly that it will not issue a right-of-way permit for transmission lines through any Forest Service land within the Beaverhead and Gallatin National Forests in the near future.

Two consequences obviously result from this position:

1. The applicant's schedule for the initiation of construction will be delayed, and

2. The Department does not have available important information which could have a significant bearing on the Department's final recommendation.

Nevertheless, the Department is required by statute to make a recommendation on the application on or before April 1, 1976, and must make its recommendation on the basis of the best information available at the time. However,additional information concerning USFS land use plans will become available to the Board in the near future,and the Board may wish to consider this information in arriving at its final decision on this application.

I.A. Recommendation I

The Department recommends that the applicant be permitted to build a 161 kV transmission line from Clyde Park to Bozeman in the corridor V-U-S-R as shown in the Draft Environmental Impact Statement.

Corridor V-U-S-R is a two-mile-wide strip of land extending one mile on each side of a line beginning at the Clyde Park substation, proceeding to the center of Section 35, T. 1 N., R. 9 E.; thence to the center of the south boundary of Section 34, T. 1 N., R. 9 E.; thence to the center of the south boundary of Section 25, T. 1 S., R. 8 E.; thence to the center of Section 9, T. 2 S., R. 8 E.; thence to the center of Section 12, T. 2 S., R.7 E.; thence to the northwest corner of Section 4, T. 2 S., R. 7 E.; thence to the Bozeman substation. The centerline of the right-of-way must fall within this corridor, but need not necessarily coincide with the line described above.

Justification

Department studies indicated that the Bozeman area receives 90% of its electrical power on the existing 161 kV line from Clyde Park. Because of this heavy reliance on one line, construction of a second 161 kV line to Bozeman would improve the reliability of electrical service to the Bozeman area. The Department analysis also indicated that no transmission capacity problems now exist at Bozeman. In the absence of outages, the existing transmission system probably will be adequate to assure compliance for approximately 15 years with the Montana Public Service Commission Rule 805 defining acceptable voltage drop limits.

Construction of the new line parallel to the extant Clyde Park-Bozeman 161 kV "A" line in corridor V-U-S-R would have minimal social and environmental costs.

I.B. Recommendation II

The Department recommends that the applicant be permitted to build a 161 kV transmission line from Clyde Park to the vicinity of Emigrant, and a

69 kV transmission line from the Emigrant vicinity to Gardiner in corridor V-U-Z-BB-CC-DD-EE-FF(east)-Gardiner, as shown in the Draft Environmental Impact Statement.

The corridor is a two-mile-wide strip of land extending one mile on each side of a line beginning at the Clyde Park substation, proceeding to the center of Section 35, T. 1 N., R. 9 E.; thence to the center of the south boundary of Section 34, T. 1 N., R. 9 E.; thence to the center of the south boundary of Section 25, T. 1 S., R. 8 E.; thence to the point labeled Z on the overlay, located at the center of Section 33, T. 2 S., R. 8 E.; thence to the southeast corner of Section 11, T. 3 S., R. 8 E.; thence to point CC, located at the northeast corner of Section 22, T. 4 S., R. 8 E.; thence to point DD, located at the center of Section 29, T. 5 S., R. 8 E.; thence to point EE, located at the center of Section 14, T. 6 S., R. 7 E.; thence to the center of the south boundary of Section 24, T. 6 S., R. 7 E.; thence to the center of Section 29, T. 7 S., R. 7 E.; thence to point FF, located at the center of Section 30, T. 7 S., R. 7 E.; thence to the northeast corner of Section 5, T. 8 S., R. 7 E.; thence to the center of Section 11, T. 8 S., R.7 E.; thence to the northeast corner of Section 7, T. 9 S., R. 8 E.; thence to the town of Gardiner. The centerline of the right-of-way must fall within this corridor, but need not necessarily coincide with the line described above.

Justification

Department studies indicate that voltage drops in the Park Electric Cooperative service area in the upper Yellowstone and in Yellowstone National Park soon will be in excess of standards set in Montana Public Service Commission Rule 805. Additional transmission capacity is therefore needed. The available alternatives for serving this need were discussed in Section 4.4.1. of the Draft EIS. They included construction of local generation in Yellowstone Park, upgrading the existing line from Livingston to Gardiner, and constructing a new line from Clyde Park to Gardiner. Of these, the constructing of a new line on the specified corridor is judged to have the least potential economic, social, and environmental impacts. Additional generation in Yellowstone Park would not be consistent with the unique character of the area. Upgrading the existing line would be more expensive than building a new line, and would also require power outages to existing customers during the rebuilding phase. The 161 kV voltage level is recommended from Clyde Park to the vicinity of Emigrant, and the 69 kV level is recommended from Emigrant to Gardiner; present load projections indicate that these levels would forestall the need for additional transmission capacity in the Yellowstone Valley and Yellowstone Park for at least 15 to 20 years.

I.C. Recommendation III

The Department recommends that the applicant be permitted to build a 161 kV transmission line to serve Big Sky from Bozeman (East Gallatin substation) within the Gallatin Canyon corridor RR-SS, as shown in the Draft Environmental Impact Statement.

Corridor RR-SS is a two-mile-wide strip of land extending one mile on each side of a line beginning at the East Gallatin substation and proceeding to the center of the northern boundary of Section 3, T. 2 S., R. 4 E.; thence to the center of Section 23, T. 2 S., R. 4 E., thence to the northeast corner of Section 27, T. 2 S., R. 4 E.; thence to the northwest corner of Section 10, T. 3 S., R. 4 E.; thence to the northeast corner of Section 28, T. 3 S., R. 4 E.; thence following the channel of the Gallatin River to the southeast corner of Section 32, T. 6 S., R. 4 E.; thence to the center of Section 36, T. 6 S., R. 3 E.; thence to Big Sky (Meadow Village substation). The centerline of the right-of-way must fall within this corridor, but need not necessarily coincide with the line described above.

This recommendation is based in large part upon current land use within the Jack Creek - Cedar Creek region, which is now being managed by the USFS as a roadless area. However, as noted, the USFS management policies are in the process of review and possible change. A land use plan for the Beaverhead Forest is expected to be completed within the next few months, to be followed by draft and final project impact statements encompassing management of both the Beaverhead (possible Jack Creek or Cedar Creek corridor) and the Gallatin (recommended corridor) National Forests.

Justification

I.C.1. Existing Bozeman-Big Sky 69 kV Transmission Line

I.C.1.a. History of Line

On January 1, 1973, the USFS approved an October 6, 1972, request by the Montana Power Company (MPC) to construct a 50 kV transmission line with a 12.5 kV underbuild through the Gallatin Canyon to the mouth of the West Fork (to Big Sky). Fourteen months later, the USFS approved an MPC request to increase the operating voltage of the line to 69 kV. Subsequently, on June 6, 1974, 18 months after receiving approval from the USFS for the Gallatin Canyon line, the MPC submitted the Clyde Park-Dillon application to the Department. This application included a proposal for an additional 161 kV line from Ennis to Big Sky and beyond. On July 2, 1975, the application was amended, stating that the 161 kV line serving Big Sky from Ennis would terminate at Big Sky.

The Master Plan of development for Big Sky was publicly announced in 1968. Future power requirements of the resort community could have been estimated at that time. To serve this future load, consideration was given to building a transmission line across the Madison Range six years ago, as illustrated in the following quotes from the original Clyde Park-Dillon application and from a May 20, 1970, USFS memorandum:

> . . . as early as May 19, 1970, representatives of the Forest Service and The Montana Power Company met and discussed the long-range plans at Big Sky, and a possible location for a transmission line to serve the area. In September and October of 1972, there was further correspondence between the U.S. Forest Service and The Montana Power Company concerning future power demands at Big

> Sky, plans for providing future power to Big Sky and the rest of the Gallatin Valley, and long range plans for circular service to Big Sky from the Madison area. (Emphasis added)
>
> 5. Consider in long-range plans circular service to Big Sky from Madison side.

An examination of the history indicates that the installation of the Bozeman-Big Sky 69 kV line was a result of poor planning and shortsightedness. The 69 kV line built just three years ago is inadequate, and, consequently, a second line was requested only a few years after construction of the first.

As a further consequence of the limited capacity of the existing line, and given the projected load growth at Big Sky and the MPC's policy regarding reliability (see Section II.A.1.), a third transmission line to serve Big Sky may be requested within a few years. The possibility of a third line is not dependent upon the capacity of any line which may be approved as a result of the present application (see discussion in the Addendum to the Draft, Section II.A.).

This poor planning results in unnecessary increases, not only in environmental impacts, but also in costs to MPC electricity consumers.

I.C.1.b. Current Management Practices of Line

Table 3-17 on page 45 of the Draft EIS contains Bozeman to Big Sky line outage data for the period from August 15, 1971, to July 22, 1974. Additional outage data for the Bozeman-Big Sky line for the period from July 23, 1974, to February 24, 1976, have been supplied by the applicant. Table 1 shows these data, together with the original data given in Table 3-17 of the Draft EIS (page 45).

The additional data indicate a significant increase in total time of outage in 1975 over that in previous years. Averaging the outage data for the years 1972 through 1975 results in approximately 25 to 30 hours of outage per year at Big Sky.

Information contained in Table 1 indicates that the cause of 55% (22 out of 40) of the total number of involuntary outages on the Bozeman-Big Sky line involved trees in the line. The 22 tree-related outages accounted for 69% of the total outage time (97 hours, 49 minutes out of 142 hours, 23 minutes) and the longest single outage to date (12 to 30 hours on May 7, 1975). These facts indicate that the reliability of the existing 69 kV line can be increased by removing additional trees outside the existing 20-foot right-of-way. The maximum potential reliability may be increased by a factor of 2 in terms of total number of outages, and by a factor of 3 in terms of total outage time.

The USFS Special Use Permit No. 4962 (6114) dated January 1, 1973, approving the original 50 kV West Gallatin power transmission line, states the following:

TABLE 1

	Date	Outage Time Hrs : Min		Reason for Outage
1.	8-15-71	3:10	I	Bad insulator
2.	8-17-71	1:20	V	Reason not given
3.	8-19-71	0:45	V	Reason not given
4.	8-20-71	1:50	V	Reason not given
5.	10- 2-71	4:50	I	Tree in line
6.	10- 2-71	1:10	I	Trees in line
7.	10- 2-71	3:30	I	Trees in line
8.	10- 3-71	3:00	I	Trees in line
9.	10-31-71	1:40	I	High winds
10.	12- 6-71	1:10	I	Contractor accidently kicked out line
11.	1-11-72	3:30	I	Tree in line
12.	7-10-72	8:45	I	Contractor hit line
13.	8-22-72	2:25	I	Unknown
14.	9-26-72	5:40	I	Tree in line
15.	10- 7-73	2:35	I	Tree in line
16.	10-23-73	0:47	I	Truck hit pole
17.	12- 4-73	0:55	I	Snow plow hit pole
18.	1-30-74	4:15	I	Tree in line
19.	3- 2-74	1:50	I	Tree in line
20.	3- 2-74	1:00	I	Tree in line
21.	3- 8-74	2:55	I	Underground dug up
22.	4-10-74	2:20	I	Phase wire down
23.	5-13-74	4:25	I	Tree in line
24.	5-12-74	1:20	I	Snow storm
25.	7-22-74	3:46	I	Trees in line
26.	12- 7-74	4:15	I	Wet snow & trees
27.	1-26-75	0:50	I	Wind felled tree in line
28.	4-10-75	2:20	I	Phase wire burn down
29.	5- 7-75	12 to 30 hr.	I	Snow & trees in line
30.	5-16-75	0:55	I	Snow & trees in line
31.	6-23-75	0:55	I	Snow & trees in line
32.	8-23-75	1:20	I	Unknown
33.	10- 9-75	1:55	I	Snow & trees in line
34.	10-22-75	10:59	I	Snow & trees in line
35.	10-22-75	1:54	I	Snow & trees in line
36.	10-23-75	2:57	I	Snow & trees in line
37.	10-23-75	0:26	I	Snow & trees in line
38.	11-16-75	6:19	I	Snow storm. Broken side post insulator
39.	12- 4-75	2:28	I	Static got into phase wire

TABLE 1
(continued)

	Date	Outage Time Hrs : Min		Reason for Outage
40.	12-12-75	2:24	I	Heavy wet snow; tree in line.
41.	12-14-75	0:45	I	Man cutting Christmas tree, felled tree in the line
42.	1-12-76	0:06	I	Relay action - high wind
43.	2-16-76	0:21	I	Relay action - very high wind
44.	2-24-76	0:27	V	Planned outage to replace broken insulator

Note: I = Involuntary Outage
V = Voluntary Outage

Risks and Hazards

Avalanches, rising water, high winds, falling limbs or trees, and other hazards are natural phenomenons in the forest that present risks which the permittee assumes. The permittee has the responsibility of inspecting his site, lot, right-of-way, and immediate adjoining area for dangerous trees, hanging limbs, and other evidence of hazardous conditions and, after securing permission from the Forest Service, of removing such hazards. (Emphasis added) . . .

Right-of-Way Clearing, Power Line

The permittee shall clear designated parts of the power line right-of-way and keep them clear as required by the Forest Service; shall trim all branches of trees in contact with or near the line; shall remove all dead snags and all trees which are leaning toward the line on or adjacent to the right-of-way . . . The clearing width shall be restricted to that necessary for safe transmission, unless the specific permission of the Forest Service for a greater clearing width is obtained. (Emphasis added)

Thus, the applicant has both the right and the responsibility to request USFS permission to remove trees hazardous to the existing transmission line serving Big Sky via the Gallatin Canyon. If, as a Big Sky corporate official has stated, when Big Sky loses power, it " . . . loses business, reputation, and, maybe, lives . . ." (Rauum 1975), then the Big Sky corporation and individual private landowners at Big Sky should urge the applicant to exercise its responsibility to request permission from the USFS to remove trees hazardous to the line.

The outage data in Table 1 indicate that all hazardous trees had not been removed during the years 1971 through 1975, either because of inaction by the applicant or because the applicant had been denied permission to do so. When questioned whether the applicant had requested permission from the USFS to remove trees outside the existing right-of-way, the applicant replied:

> The Forest Service has allowed Montana Power Company to remove many trees beyond the 20 foot wide right-of-way. We have plans to remove additional danger trees in 1976. However, to remove enough trees to eliminate future outages would result in a right-of-way clearing that would be unacceptable to the Forest Service from an aesthetic viewpoint. (MPC March 15, 1976)

Thus, service reliability (i.e., the lack of power outages) at Big Sky is being deliberately maintained at less than that potentially available from the existing line in an attempt to reduce aesthetic impacts.

The Department is concerned with minimizing aesthetic impacts of transmission lines. Efforts by both the USFS and the MPC to minimize aesthetic impacts of the existing line in the Gallatin Canyon, as evidenced by the painted poles, armless construction, "shadow" conductors, and minimum tree removal, are commendable.

However, it should be noted that a new transmission line to Big Sky, based on the need to improve service reliability (i.e., reduce the number of power outages), will have unavoidable aesthetic impacts. The illogic of deliberately maintaining the existing Big Sky line at less than its maximum potential reliability for aesthetic considerations thus becomes apparent. The aesthetic benefits to society as a whole which are gained by maintaining reduced reliability of service at Big Sky would be more than offset by the aesthetic degradation associated with any new line built through the Gallatin Canyon, Jack Creek, or Cedar Creek.

I.C.2. Need for Line to Big Sky

With respect to Big Sky, Department studies indicate that Big Sky peak demand has in the past reached the capacity of the existing 69 kV line. Table 3-1 on page 13 of the Draft EIS lists the capacity of the Big Sky-Bozeman line as 9 MW. Table 2 contains the historical Big Sky peak demand data supplied by the applicant. The Big Sky load at the Jack Rabbit substation, which is the total Big Sky load (MPC March 15, 1976), was 9048 KW in December 1974, December 1975, and January 1976. Because the capacity of the existing line has been reached, and because growth in electrical demand will continue at Big Sky, the Department must recognize the need for additional transmission capacity to Big Sky.

The need for additional transmission capacity to Big Sky, which the Department in this case acknowledges, does not necessarily indicate a need for new transmission lines. Other alternatives exist: addition of voltage compensation equipment, upgrading the existing line by increasing conductor size while retaining the existing voltage level, and rebuilding the existing line at a higher voltage level. Neither of the first two of these alternatives would provide sufficient capacity to meet the peak projected long-term demand at Big Sky, nor would a combination of the two. Their implementation would therefore mean unnecessary additional expense to all Montana Power Company electrical consumers. Either upgrading the existing line to 161 kV or building a new 161 kV line would result in less energy loss during transmission (see page 59 of the Draft EIS), and provide capacity beyond the projected maximum peak power demand of 32 MW at Big Sky. Construction of a new 161 kV transmission line is the most appropriate alternative, however, to meet the need for the additional transmission capacity (see Section I.C.3.).

The Department is not basing its decision regarding the need for an additional line to Big Sky on the accuracy of the applicant's load projections for Big Sky. A comparison of Table 2, which contains the historical peak load data for Big Sky, with Big Sky projections shown in Table 3-7 of the Draft EIS (page 23) demonstrates that growth is not occurring as projected. Table 2 data indicate that the peak load for winter 1975-1976 will likely be about 9048 KW, the same as the 1974-1975 winter peak. The projected values from Table 3-7 of the Draft EIS were 10,950 KW for winter 1974-1975 and 12,445 KW for winter 1975-1976. With respect to comparisons between the actual Big Sky peak loads and the applicant's projections, the applicant has stated:

TABLE 2

BIG SKY PEAK DEMAND

		Big Sky Load Meadow Village Substation		
	Month	Peak KW	Average KW	
1972	November	1230	N.A.	Meter Readings
	December	1518	N.A.	Began
1973	January	1800	N.A.	
	February	1800	N.A.	
	March	1700 (E)	N.A.	
	April	1500 (E)	N.A.	
	May	1194	N.A.	
	June	1200 (E)	N.A.	
	July	1260	N.A.	
	August	2460	N.A.	
	September	1116	N.A.	
	October	1308	N.A.	
	November	1770	1219	
	December	2712	1579	
1974	January	2850 (E)	N.A.	
	February	2418	1702	
	March	3252	1541	
	April	2500 (E)	N.A.	
	May	2010	882	
	June	852	756	
	July	1000 (E)	N.A.	
	August	1092	716	
	September	2752	N.A.	
	October	2700 (E)	N.A.	
	November	1254	N.A.	
	December	3024	1100	
1975	January	3456	1972	
	February	4884	1840	
	March	3204	1598	
	April	2500 (E)	N.A.	
	May	1524	1219	
	June	2604	N.A.	
	July	2300 (E)	N.A.	
	August	1430	N.A.	
	September	1350	N.A.	
	October	3030	1511	
	November	3100 (E)	N.A.	
	December	3400 (E)	N.A.	
1976	January	3564		

TABLE 2
(Continued)

	Big Sky Load Mountain Village[1]		
	Month	Peak KW	
1975	May	3072	Meter Readings
	June	2000 (E)	Began
	July	2000 (E)	
	August	1920	
	September	2064	
	October	3744	
	November	4000 (E)	
	December	4500 (E)	
1976	January	4992	

	Big Sky Load Jack Rabbit Substation [1] (From Watt Charts)		
	Month	Peak KW	
1974	December	9048	Meter Readings
1975	January	8004	Began
	February	8004	
	March	7308	
	April	6612	
	May	6264	
	June	4176	
	July	2784	
	August	2436	
	September	2784	
	October	4872	
	November	7656	
	December	9048	
1976	January	9048	

NOTE: November and December 1975 readings for Meadow Village and Mountain Village unavailable because of broken collar bone of resident representative.

[1]/Metering facilities not installed to record average KW

> The construction schedule of Big Sky must be considered when analyzing load projections. The estimates prepared by Mr. Hildreth (of MPC) were based on information supplied by Big Sky which showed construction of over 700 condominium units and over 50 residences by the 1975-1976 season. The Draft Impact Statement, Clyde Park-Dillon, on Page 21, indicates that 37 homes have been built to date and 564 condominiums built to date. (MPC March 15, 1976)

The precise timing of development at Big Sky and the final peak load to which it will grow are not certainties. However, the major consideration at present is that additional transmission capacity to Big Sky is already needed.

The current need for additional electricity at Big Sky has been established, and,according to the Big Sky Master Plan, the corporation desires increased development, and, hence, increased electrical consumption. However, the Department has received a considerable number of comments to the effect that energy consumption at Big Sky does not constitute the best use of energy and that requests for additional energy and transmission lines therefore are not based upon a valid public need.

The Department is aware of the increasing value of energy and the nonrenewable resouces now consumed to generate it. Conservation is seen as the most readily available and most thoroughly acceptable solution to past and projected energy shortages, and the Department, convinced that conservation must be the keystone of any rational energy policy in the state or nation, has publicly advocated the exploration and implementation of various measures which would encourage greater efficiency in both the production and the use of energy.

The Department does not believe sufficient evidence has been presented to prove that the best available energy conservation technology (e.g., maximum insulation) has been applied at Big Sky, but does believe an emphasis on conservation on the part of Big Sky and other developers could result in a meaningful reduction in demand. However, the Department also believes its present legal mandate does not extend to denying increased electrical energy to Montana consumers on the basis of the ultimate use of the electricity, or to setting the maximum amount of electrical energy that existing electric consumers, including the Big Sky corporation and individual private Big Sky home owners, may consume.

I.C.3. Gallatin Canyon Corridor Selection

I.C.3.a. Basis of Selection

Big Sky is located in a remote spot resulting in two choices for the siting of transmission line corridors. These choices are to use an existing corridor through the Gallatin Canyon or to open a new corridor across the Madison Range via Jack Creek or Cedar Creek. The nature of the existing corridor through the Gallatin Canyon is different in many respects from any new corridor across the Madison Range. As a result of these differences, the kind and severity of impacts produced by a transmission line are quite dissimilar in the two areas.

The Gallatin Canyon is a narrow, steep-sided valley containing a major western Montana river, a primary highway, an existing transmission line, and a number of residences, subdivisions, and commercial establishments. The Canyon is also a very scenic route followed by many travelers to or from Yellowstone National Park.

Jack Creek and Cedar Creek, on the other hand, lie in an area of high peaks and extensive forests relatively untouched by human activity. These streams lie in a wilderness-like area which includes the Spanish Peaks and extends south to the vicinity of Hebgen Lake. Much of the Madison Range has been named in various proposals for possible inclusion into the national wilderness system. A transmission line across the area would locally destroy the wilderness character and would split remaining wilderness-like area into two smaller pieces.

Establishing a transmission line to serve Big Sky by either corridor is controversial. The Department has considered the many arguments presented favoring one location over the other. These various arguments can be grouped into the categories discussed below.

1. For engineering proposes alone, there is some advantage in reliability by crossing the Madison Range, as discussed in Section II.A. However, the difference between the possible corridors is not significant.

2. The potential difference in construction cost of the two alternatives was considered. Based upon information available at this time, the Department is not convinced that the difference in costs is sufficient reason to determine the selection of one corridor over the other.

3. Potential impacts upon the natural environment would be least in the Gallatin Canyon corridor. There would be less risk of stream sedimentation and less impact on wildlife,but greater wood productivity loss. However, the Gallatin Canyon is not now being managed for timber production.

4. Determination of the optimum corridor for the cultural environment partly depends upon who is considering the impacts. Landowners in the Gallatin Canyon tend to favor the Madison corridors (Jack Creek or Cedar Creek). Visual impacts, potential loss of property value, and radio/TV interference (see public comments in Section III) are reasons given against placing the line in the Canyon. On the other hand, landowners in the Ennis and Dillon areas have expressed such reasons as visual impacts and interference with agricultural practices against building across the Madison Range. Some other persons and groups favor using existing corridors; in this case, the Gallatin Canyon.

The differences in engineering, costs, environmental impacts, and public opinion were not considered sufficient to warrant one recommendation over its alternative. The overriding consideration by the Department in recommending that the transmission line be built in the Gallatin Canyon corridor is to avoid opening a new corridor through the wilderness-like Jack Creek-Cedar Creek area.

First, wilderness land can be viewed as a non-renewable resource, at least in terms of several life spans. The extensive wild lands of North America have been reduced to small portions of their former extent. The area lying between Big Sky and the Madison Valley is wilderness-like, and the Ennis-Big Sky segment of the proposed transmission line would alter that characteristic.

Second, recommending a line from Ennis to Big Sky would be contrary to the present Montana Power Company policy regarding the intrusion of transmission lines into such areas,as can be evidenced by MPC's submission of an amended application " . . . because of the possible degradation of environmental qualities in the Tom Miner-Buffalo Horn Porcupine area." (MPC March 26, 1976)

I.C.3.b. Engineering Alternatives of Gallatin Canyon Corridor

Section 4.4.3. of the Draft EIS identified two alternatives involving a Gallatin Canyon corridor to supply Big Sky with increased power: (1) upgrading the present 69 kV line, or (2) building a new 161 kV line. Additional study of the Gallatin Canyon segment of the Bozeman-Big Sky line conducted since the Draft EIS was written has indicated that construction of a new 161 kV line would be the optimum alternative, as it would involve the least adverse impacts during both the construction and operational phases of the life of the line.

The existing transmission line in the Gallatin Canyon transports power to Big Sky via a 69-kV conductor system and also distributes power to individual canyon electrical consumers via a 12-kV underbuild system. Because of its dual function, upgrading this line would result in several adverse impacts. Upgrading would require replacement of the existing poles and the 69 kV conductor, necessitating temporary power outages both at Big Sky and in the Gallatin Canyon. The existing right-of-way would also need to be widened. Upgrading of the present line would also cause impacts during the operational life of the line in the form of radio and television interference from corona discharge during foul weather. These impacts will result because at least 96% of the homes in the Canyon are located within 1000 feet of the 69 kV line (see Table 3), and corona discharge from the 161 kV line during foul weather (rain, snow and fog) is estimated to affect radio and television reception within a distance of approximately 1000 feet of the line. Some degradation of car radio reception and two-way radio communication would also occur during foul weather because about 99% of the 69 kV line is located within 1000 feet of the Canyon highway.

Building a new 161 kV line on a separate right-of-way does not have the same disadvantages as upgrading the 69 kV line. It would not impose power outages on the Gallatin Canyon residences during construction, and also would substantially reduce, if not eliminate, the power outage duration necessary at Big Sky. Building a new line would not necessarily produce as much radio and television interference as upgrading the existing line. Although a new line would represent an additional source of interference, it would not function as a canyon distribution line, and, thus, could be routed away from existing homes and the highway.

TABLE 3

LOCATION OF HOMES AND HIGHWAY RELATIVE TO THE 69 KV LINE

(March 12, 1976)

Beginning Canyon - Forest Service Boundary

	0-300'	300-600'	600-900'	900-¼ mile	Total
Permanent Homes	66	5	35	10	116
Cabins	11	5			16

Forest Service Boundary - Moose Creek

	0-300'	300-600'	600-900'	900-¼ mile	Total
Permanent Homes					0
Cabins	39	14	1		54

Moose Creek - Big Sky Turnoff

	0-300'	300-600'	600-900'	900-¼ mile	Total
Permanent Homes	49	1	3	1	54
Cabins	49	3			52

Grand Total 292

Gallatin Canyon 69 KV Line

	Miles	% of Total
Length of line between 0-300' of highway	19.0	81.9
Length of line between 300-600' of highway	3.0	12.9
Length of line between 600-900' of highway	0.9	3.9
Length of line over 900' from highway	0.3	1.3
Total	23.2	100%

Without knowledge of the new line's centerline location, no exact construction cost comparison can be made between the two alternatives. Construction of a new line, however, is expected to be less expensive because of the costs associated with removing the existing poles and conductors. If a new 161 kV line is constructed to Big Sky, the existing 69 kV line might no longer be necessary to serve Big Sky loads. However, removal of this line would represent an undue expenditure,as the underbuilt 12 kV system could not be removed unless a new distribution line were constructed.

The construction of a new 161 kV line through the Gallatin Canyon to Big Sky would probably result in fewer power outages, lower construction cost, and less potential for radio and television impact on canyon residences and highway users. This alternative, therefore, is considered optimum.

I.D. Recommendation IV

If transmission line and corridor certificates are granted by the Board, and prior to beginning construction, it is recommended that the applicant obtain approval from the Board regarding the location of the proposed centerlines, access roads, and staging areas, together with detailed construction methods and plans, to minimize environmental impacts. The applicant should also consult with landowners and the Department to establish these details. The selection of centerlines within the corridors should follow wherever possible property boundary lines and existing fence lines, and should accommodate as much as possible the landowners' preferences.

The Department further recommends that the applicant and its contractors follow construction practices which will result in minimum environmental impact, including impact upon visual characteristics of the area. Specifically, it is recommended that the centerline selection, construction, and maintenance follow criteria presented in two handbooks: National Forest Landscape Management, Volume 2, Chapter 2 - Utilities (USDA Handbook 478) and Environmental Criteria for Electric Transmission Systems (U.S. Dept. of Interior and USDA).

II. Addendum to Draft EIS

Additional information and corrections are necessary in some parts of the Draft EIS for clarification. They are categorized below and referred to by page number.

II.A. Additional Information

II.A.1. Chapter Three

The information below corresponds to Chapter Three of the Draft Environmental Impact Statement and should follow section 3.3 on page 46. It should be noted that this material was prepared after publication of the Draft EIS.

3.3.1. Potential Reliability Increase

For the reasons given in Sections I.C. and II.B.5., and in view of the alternative whereby Big Sky can provide its own emergency electrical generation, the Department recognizes a need to build an additional line to increase transmission capacity to Big Sky, but does not recognize the need for a new line to improve service reliability (i.e., to reduce the number of power outages). However, construction of a second line to Big Sky to increase capacity would also have the effect of increasing reliability. This section contains a discussion of the differences in potential reliability increase which would result from a new Gallatin Canyon transmission line versus a new line along either Jack or Cedar Creek. The significance of this difference to Big Sky consumers is also addressed.

In response to a Department inquiry, the applicant has stated that a new Gallatin Canyon line, constructed on a right-of-way separate from that of the existing line, would " . . . substantially increase . . ." Big Sky service reliability. The applicant also expressed the view that this increase would be ". . . somewhat inferior . . ." to their proposed plan (i.e., a route along Cedar or Jack Creek).

The Department has generally substantiated the applicant's view. Based upon the line outage data provided for the Bozeman-Big Sky line in the Draft EIS, the construction of a 161 kV line in the Gallatin Canyon on a right-of-way separate from the existing line is estimated to improve service reliability at Big Sky by about a factor of ten. Similarly, construction of a Big Sky-Dillon line through Jack or Cedar Creek was estimated to increase reliability by about a factor of fifty. The difference in potential reliability results from the separation between the existing line and the new line. Since the Cedar or Jack Creek alternatives are farther from the existing line serving Big Sky, the probability of weather-related outages occurring simultaneously on both lines is reduced.

A difference between a fiftyfold and a tenfold increase in service reliability may indeed be significant in some contexts. The Department is not convinced, however, that a significant difference would be evident when translated into actual electrical service experienced by consumers at Big Sky. The reasoning behind this opinion can be demonstrated by applying the different reliability factors to the historic Bozeman-Big Sky outage data. Assume that each involuntary power outage listed in Table 1 of the Final EIS for the years 1972

through 1975 represents one outage day, an outage day being any day in which an involuntary outage occurs. The average number of outage days per year experienced during 1972 through 1975 was 7.8. A tenfold increase in reliability resulting from a new 161 kV line routed through the Gallatin Canyon would reduce the average from 7.8 outage days to about 0.8 outage days. A fiftyfold increase in reliability resulting from a Cedar or Jack Creek route would reduce the average 7.8 outage days to 0.2 outage days per year. The Department is not convinced that the difference between 0.8 outage days per year and 0.2 outage days per year is significant. Both outage day rates represent acceptable reliability.

3.3.2 Possibility of a Third Big Sky Transmission Line Application

In two applications currently on file with the Department, the applicant has expressed a definite policy regarding reliability and the need for additional transmission line construction. In justifying the need for construction of a new line in the Anaconda-Hamilton 161 kV line application, the applicant states:

> This need (for a new 161 KV line) is based upon regionally recognized utility practice and design procedures to provide a minimum transmission voltage level of 90% of the nominal voltage at the distribution substation during peak summer load while one transmission line that normally serves that substation is out of service.

In the original Clyde Park-Bozeman 161 kV "B" line application, the applicant wrote:

> It is the policy of the Montana Power Company to maintain a transmission voltage of 90% of base voltage at the distribution substation during an outage of a single transmission line serving that substation when that substation is loaded to 80% of its annual peak load.

Department studies indicate that the existing Bozeman-Big Sky 69 kV line capacity is 9 MW and that, if voltage compensation equipment were installed, the capacity could be expanded to 12 to 15 MW. However, the load at Big Sky is predicted to exceed 15 MW beginning in the winter of 1976-77 and the summer of 1979. The maximum potential (15 MW) capacity of the Bozeman-Big Sky 69 kV line will be exceeded by both 80% and 90% of the projected peak loads beginning in the winter of 1977-1978 and the summer of 1980.

The applicant has not included a third Big Sky line in any of its long range plans filed with the Department. However, given the above facts, one of the following three scenarios can be expected to occur.

1) Big Sky growth will terminate at about 17 MW so that the 69 kV line can supply both 80% and 90% of the annual peak load. The Department is aware of no evidence which indicates such a termination will occur.

2) The applicant will change or disregard its stated policy regarding reliability and the need for new transmission lines.

3) The Department will receive an application for a third line to Big Sky.

II.A.2 Chapter Five

In Chapter Five, after section 5.3.6. on page 69, the following information was inadvertently omitted from the Draft EIS.

5.4. Electrical Characteristics and Impact Evaluation

The increased use of high voltage transmission lines has brought attention to problems of electrical interference with land line communications systems, common aspects of corona, and radio interference (RI). Corona effects have been minimized to reduce energy loss, but until recently have not been considered a serious environmental problem. Radio interference due to corona discharge has become more apparent and important as the number of complaints from citizens has increased. Studies are presently underway to establish acceptable limits of corona effects. Some sources of corona discharge cause momentary interference, but are not important public annoyances at this time. These are: flash-over of insulators, cracked insulator, loose hardware in the tower assembly, and gap discharge.

5.5. Communications System

When a power circuit and a communications circuit are in proximity to each other, the power circuit may cause certain inductive or conductive effects which may interfere with the operation of the communications system. This electrical interference may cause extraneous voltages and currents, possibly resulting in damaged apparatus, interrupted service, overheating, and noise and acoustic shock in telephone circuits. However, all of these problems can be minimized through coordination of both the power and communications systems by the companies involved.

5.6. Corona

Corona discharge in the air is defined as: "A luminous discharge due to ionization of the air surrounding a conductor caused by a voltage gradient exceeding a certain critical value." At the given voltage, corona is determined by conductor diameter, line configuration, type of conductor, condition of conductor surface, relative humidity, and weather. Rain, more than any other weather condition, increases corona. It causes energy loss through corona up to 20 times as high than is observed during fair weather. In transmission lines with less than 230 kV capacity, the corona energy loss is negligible in fair weather.

5.7. Radio Interference

Radio interference caused by transmission lines has not been thoroughly investigated. The line conductor configuration, the number of circuits, and the presence of ground wires all affect radiation from the line, but very little is known about the actual process at this time.

Radio interference is known to increase as the voltage gradient at the surface of a conductor increases, and hence -- for a given voltage -- is a function of conductor diameter. Radio interference is also known to vary inversely with the radio frequency, meaning that communications using higher frequency bands are less likely to be affected. Directional antennas, which are generally used at higher frequencies, increase signal-to-noise ratios and therefore can mitigate some radio interference resulting from transmission lines. Finally, radio interference is known to decrease from the line increases.

In order to evaluate the potential radio interference of a proposed transmission centerline location, several factors must be known, including the frequency range of existing communications services, the number and type of communication receivers in the vicinity of the proposed line, the proximity of specific receivers to the line, the existing signal strengths, the satisfactory signal-to-noise ratio, and the general importance of the various communications systems.

Addition

Since publication of the Draft EIS, additional information has been learned relative to corona discharge, and the potential for increased radio and television interference due to a new 161 kV line in the Gallatin Canyon. The following information should appear before section 5.6. ("Corona and RI"):

> Although corona producing RF noise is dependent on applied voltage for a given conductor diameter and phase spacing; it is also affected by the surface condition of the conductors as well as the conductor diameter itself. The corona produced by a transmission line of a given voltage line changes dramatically with a change in conductor size. As an example, a 69 kV line with a Number 2 ACSR conductor will more likely have a corona discharge at its operating voltage than a 161 kV line with 556,400 kcmil ACSR conductor. Actually neither a 69 kV line or a 161 kV line should be an objectionable source of noise under fair weather conditions if they are properly engineered and constructed.
>
> During inclement weather both the 69 kV line and a 161 kV line may generate considerable corona discharge. The noise level of the 161 kV could be somewhat higher than the 69 kV line but this would be offset to some extent by the fact the second line can be built further away from the Gallatin Canyon customers. Only in some of the narrowest areas of the Canyon would the two lines come together and be close to the highway. It must be concluded however that a second line would add some radio noise to the Canyon even though quite small. (Harza Engineering Company March 22, 1976)

II.B. Technical Appendix References

On page 143, line 3, change the words "the unpublished Technical Appendix" to "Technical Appendix H."

On page 144, line 12, change the words "unpublished Technical Appendix F" to "Technical Appendix I."

Change all references in section 6.3.2.5. (Fauna) to "Technical Appendix I" to read "Technical Appendix J."

Change all references in section 6.3.3.2. (Land Use) to "Technical Appendix J" to read "Technical Appendix K."

II.C. Miscellaneous

On page 92, line 7, change the parenthetical reference to "Figures A and B" to read "Figures 6-4 and 6-5."

Insert the title "Figure 6-22" under the matrix shown on page 294.

II.D. Acknowledgments

Two contributors were inadvertently omitted from the acknowledgments list presented at the end of the draft. Appreciation is gratefully extended to the Cartography Bureau of the Department of Natural Resources, Don R. Breiby, Chief, for the many hours spent in mapwork and cartographic coordination. Appreciation is also extended to Earl Reinsel of the U.S. Forest Service.

III. Public Comments on the Draft EIS

III.A. Public Hearings

The Department held two public meetings for the purpose of obtaining statements on the application. The first meeting was held in Bozeman on March 2, 1976, and 84 persons attended, 11 of whom presented oral comments. The second meeting, on March 3, 1976, in Ennis, was attended by 33 persons, nine of whom gave statements.

Of the 20 statements given at the public meetings, two supported the application and construction of the proposed transmission line. The other 18 respondents were opposed to all or part of the project.

Negative comments given at the public meetings reflected many of the same feelings given in the letters. Although attention was centered upon Big Sky and the need for another transmission line into that area, other concerns were also expressed. For example, most persons favored a corridor in the Gallatin Canyon rather than across the Madison Range if additional transmission facilities must be supplied. Other speakers were interested in possible damage to the potential wilderness status of the Jack Creek-Cedar Creek areas and to agricultural land in the Ennis-to-Dillon area.

Comments in favor of the line gave support to Big Sky and the need for another transmission line to the area. Justification included the need for reliable power at the Big Sky area and the necessity for power for general well-being.

III.B. Summary of Written Response

Through March 19, 1976, the Department received 122 letters in response to the Draft EIS. A number of the persons giving oral statements at the public meetings also submitted letters, which were counted in the letter compilation.

Many letters stated support for or opposition to the application. However, a simple tally of the number for and against the project is not feasible, as many letters opposed or supported some of the alternatives only, while others commented on the content of the EIS only. Opinions and recommendations, however, can be tabulated. The following summary of written public comment lists the reasons given favoring or opposing the transmission line project, as well as recommendations, and the number of times each was cited.

Reasons to Permit Line Construction	Number of Times Cited
1. Provision of increased reliability of service to Big Sky	7
2. Fulfillment of a general need	6
3. Belief that Big Sky is a community like any other in Montana and should therefore have the reliability of service that other communities have	4
4. Improvement of general economic conditions or to increase statewide employment	3

Reasons to Deny Line Construction	
1. Insufficient need (most letters refer to the need at Big Sky)	42
2. Crossing of wild land (particularly the west side of the Madison Range)	36
3. Aesthetics	20
4. Concern over the wedge theory of development in the Jack/Cedar Creek area if the line crosses the Madison Range between Ennis and Big Sky	14
5. Possible establishment of spin-off developments around Big Sky, and the changes that the Gallatin Canyon and other areas would experience	19
6. Belief that electricity rates would rise	6
7. Use of the line (especially at Big Sky) is contrary to the conservation of electrical energy, and that such consumption is used to justify Colstrip Units 3 and 4	8

8.	Possible damage or loss of agricultural land	13
9.	Possible impacts upon wildlife	15
10.	Possible general damage to land, forests, and watersheds	7

Recommendations

1.	Big Sky should generate all or part of its own electrical supply on-site	13
2.	Upgrade the existing 69 KV line in the Gallatin Canyon or build a new line in the canyon to serve Big Sky	28
3.	Build a transmission line across the Madison Range to serve Big Sky from Ennis	6
4.	Delay certification of the line to serve Big Sky until need is established	3
5.	Use existing corridors	11
6.	Be extremely careful (possibly use helicopter construction) if line is built across the Madison Range	2
7.	Use forms of energy (especially at Big Sky) other than electricity	7
8.	Initiate energy conservation programs at Big Sky and at other developments	10
9.	Limit the growth and development at Big Sky, in the Gallatin Canyon, and other areas	4

III.C. Selected Letters

Of the written comments received, several have special importance or are representative of recurring points of view. These comments are reproduced here, followed by the Department's response in section III.D.

RECEIVED
MAR 17 1976
MONT. DEPT. OF NATURAL RESOURCES & CONSERVATION

BEFORE THE MONTANA BOARD OF

NATURAL RESOURCES AND CONSERVATION

In the Matter of the Application of The Montana Power Company Under The Montana Major Facility Siting Act, for a Certificate of Environmental Compatibility and Public Need for the Clyde Park-Dillon 161-kV Transmission Facility.	APPLICANT'S COMMENTS REGARDING DNR'S DRAFT EIS

The Applicant submits the following comments on the Department of Natural Resources and Conservation's (DNR's) Draft Environmental Impact Statement on the Clyde Park-Dillon 161-kV and 69-kV transmission lines issued January 1976. These comments include references to chapter, section, and page numbers in the EIS.

CHAPTER ONE

No discussion is made of the alternative route in the Dillon area, which was submitted to and discussed with the Department on October 22, 1975. Attached hereto and marked Exhibit "A" is a copy of a map which shows this alternate route in the Dillon area marked in red. This alternate in the Dillon area should receive consideration because of the potential for reducing land use and offsetting impacts in the immediate Dillon area.

CHAPTER THREE

The need analysis in the EIS, beginning at Section 3.2 on page 12 is inadequate because proper consideration is not given to the need for the project other than at Big Sky. The need for this project is not confined to the Big Sky Area. For

example, more discussion should be given regarding the need for increased electrical power in the Bozeman and Upper Yellowstone Valley areas because of inadequate voltage levels and reliability problems. Also, the last sentence on page 12 is misleading because, "The Applicant did not request an all-electric Big Sky Resort...." Also, at page 19, the attempt to describe the REA service area in map form is confusing and inaccurate.

Furthermore, during the public meetings held on the Draft Environmental Impact Statement, the Department did not adequately explain the need for the line. For example, at the public meetings, no mention was made by the Department regarding the need for the line to supply additional electricity to the Upper Yellowstone Valley and Yellowstone Park. Nor did the Department at the public meetings refer to the additional reliability that would be extended to the Madison and Ruby Valleys.

Regarding the discussion of system reliability in problem service areas, commencing at Section 3.3, it should be pointed out that at page 37 the Applicant does not allow up to 15% voltage drops in its operating rules. The table 3-15 at page 14 contains a typographical error in the pu (per unit) voltage in the case where no transmission facilities have been added to the system and a voltage level of .31 would be experienced at Big Sky. This figure should be 0.81.

At page 44, figure 3-4 states that the Applicant's transmission system serving the Upper Yellowstone area is 50-kV. References to the transmission system serving the Upper

Yellowstone Valley should be 69-kV rather than 50-kV.

CHAPTER FOUR

The discussion regarding upgrading the existing facilities, commencing at section 4.3.1 at page 50, is inadequate. At page 50 the references to generators in the 5 to 8 KW capacity should be amended to read 5 to 8 MW capacity. Further discussion in this section 4.3.1 should include the amount of fuel consumed, the number of generators, the problems associated with changing of each structure to comply with the National Electric Safety Code, what is to be done with the underbuilt distribution system, and many of the other problems associated with tearing down the existing 69-kV line and replacing the entire system with a brand new 161-kV system. Increased right of way, clearing, effects of radio and television interference are not discussed. Upgrading the 69-kV line to 161-kV would mean complete replacement of all existing facilities, including poles, insulators and wire.

The discussion regarding extruded solid dielectric cables at section 4.3.2.4, commencing at page 54, is incorrect. The EIS said that it is impossible to use plowing procedures in certain types of soil thus eliminating trenching. This can be done with distribution-type cables (URD) but is not done with transmission systems. The National Electric Safety Code requires a minimum burial length of 42 inches for direct buried cables utilized at over 40-kV.

The discussion regarding the Upper Yellowstone Valley and Yellowstone National Park at section 4.4.1 on page 58 is

inaccurate. The first paragraph on page 58 implies that a 161-kV line is available at Livingston. There is no source of 161-kV available at Livingston. The nearest source of 161-kV is Clyde Park. This paragraph also inaccurately implies that there are sources of power available to the Livingston area other than Clyde Park. There exists a 50-kV system serving Livingston, but without Clyde Park as a source of power for the Livingston area, adequate voltages could not be maintained by the remainder of the 50-kV system without the Clyde Park source during peak demand conditions. The transmission line from Livingston to Gardiner is already 69-kV.

The discussion regarding the Big Sky service area at section 4.4.3 at page 50 is inaccurate. The EIS states that "The existing 50-kV line from the hydro plant to the Bozeman Southside Substation could be replaced by a 161-kV line". There does not exist and there are no plans in the next ten years to take a 161-kV line to the Bozeman Southside Substation. A 161-kV line presently terminates at the East Gallatin Substation located northeast of Bozeman, while the Bozeman Southside Substation is a 50-kV distribution substation located near the MSU campus.

The alternative of merely "upgrading" the Gallatin Canyon 69-kV line to 161-kV would <u>not</u> increase reliability at Big Sky as is stated in the last paragraph on page 60. Construction of on-site generation or construction of additional transmission lines is needed to increase reliability.

CHAPTER FIVE

The description of the proposed facility, at section 5.2 on page 61 is incorrect. The Clyde Park-Bozeman-Ennis line is seventy-nine miles long rather than fifty-two miles. The number of 161-kV structures per mile should be seven (H type) or thirteen (single-pole). The insulators are made of porcelain and steel. The number of 69-kV structures per mile should be 11-13. Construction crew size should be 35 persons.

The construction schedule as set forth in section 5.3.1 on page 64 may be impossible to meet because of the delays which have occurred in obtaining approval of this project.

CHAPTER SIX

At section 6.3.2.4 regarding tower erection, the cost of tower erection alternatives should also be considered. With regard to the flying in of sockline by helicopter, as stated on page 173, it should be noted that in many instances such use of a helicopter cannot be justified on a cost benefit basis. At page 174, with regard to the discussion on latent defects, it should be noted that all latent defects are corrected and/or paid for to the landowner and repairs are done to his statisfaction. The utility does not continue to use the roads, fences, gates, crops, etc., in perpetuity. Many landowners request roads and gates to be left for their use and therefore maintenance from the landowners' use should be the responsibility of the landowner. Other landowners want roads obliterated or barricaded and gates taken out. These matters have always been an individual matter to the landowner and it is the Applicant's policy to cooperate with the landowner. At page 231, the Environmental Impact

Statement states that the line will directly impact 1,762.42 acres of land and indirectly affect an unknown number of adjacent acres. If the line is across farmed ground, the only area directly effected is where the structure is placed. To avoid the H-frame structure during farming operations would require leaving an area approximately 5' X 20' around it; this would amount to 0.0022 acres. The remaining area in the right of way continues to be farmed as the overhead wires are sufficiently high to allow farming equipment to operate under them. If one were to assume the entire 188 miles of line were in farm ground, the total unusable area would amount to 3.1 acres.

Even if roads are constructed on the right of way, they seldom exceed 20' in width. If the road were left, it would affect only 25% of the land in the right of way -- no 100% as the EIS contends.

On page 263, in the discussion regarding TV interference, it should be noted that TV interference as caused by the transmission lines can be corrected. Furthermore, as noted in the study by Dr. Daniel N. March, "Considerations Relative to a 161-kV in the Gallatin Canyon", March 11, 1976, the line should be located so as to avoid such radio and TV interference. (See Exhibit "B", the March report, attached hereto, and also see Exhibit "C", Applicant's Analysis of the March report, attached hereto.)

At page 263, the last paragraph is mainly applicable to distribution voltages and it should be pointed out it is not applicable to 161-kV in most instances. Section 6.3.3.3, at page 267, the discussion regarding costs of the transmission line disagrees with the cost figures previously provided by the

Applicant to the Department. At page 273, regarding the discussion of tax revenues, the EIS statement that previous claims regarding tax revenues being spurious is unjustified. These tax estimates are represented as being estimates and if they are to be spurious most everything else in an Environmental Impact Statement which is also an estimate should also be called spurious.

At page 277, regarding conclusions, the last sentence in the second paragraph which states, "The fiscal impacts are minor and are largely inconsequential", is unclear and needs elaboration. The philosophical discussion commencing at page 279 and proceeding through 273 is largely editorial opinion and gives only the Department's side of many of the philosophical issues therein presented. Furthermore, because there seems to be little fact and mostly opinion in this section, the Applicant questions the propriety of including such a discussion in an Environmental Impact Statement.

Set forth below are the Applicant's comments regarding the seven major segments of this project as defined by DNR:

(a) Dillon-Ennis

We believe the concern about land use impact on the Applicant's preferred route can be minimized by careful line and structure location and if appropriate, following the alternate that crosses the Beaverhead Valley 15 miles northeast of Dillon for a portion of this segment.

(b) Ennis-Big Sky

The Applicant agrees with the DNR that a relatively direct route by way of Jack Creek has some advantages if such a route was acceptable to private landowners and public land

route. The EIS fails to mention that such an alternative would be located in a major slide area in the narrow Allen Spur Canyon. The fact the preferred corridor follows an existing 161-kV line for several miles southwest of Clyde Park should have considerable significance. Investigation of segment U-Z of the preferred route indicates less timber clearing than stated in the EIS.

(g) Bozeman-Big Sky

It is inconceivable that a 50-mile line from Bozeman to Big Sky would be less expensive to construct than a 20-mile line (9 miles of which cross relatively favorable terrain) from Ennis to Big Sky. The cost of the former would be increased by the need to overbuild distribution most of the way. A 161-kV line in the Gallatin Canyon would require new structures, conductor and easements in contrast to what might be construed by some from the term "upgrading".

Replacing the existing 69-kV line with a 161-kV line would require at least an additional 20 feet width of right of way clearing. This assumes the 161-kV line could be in the exact location of the 69-kV line which wouldn't always be possible.

The reliability of a 161-kV line in the Gallatin Canyon would probably be adversely effected by right of way clearing limitations imposed by the Forest Service due to the proximity to the highway.

A survey is presently being conducted for us by Dr. March of MSR on the impact of a 161-kV line in this canyon on radio and television reception. Mountain Bell is reviewing the potential impact of a 161-kV line on telephone communications

managing agencies. However, the Applicant still believes that the Cedar Creek route is the most practical.

(c) Ennis-Bozeman

The Applicant strongly favors the westerly route between points M and N because of more favorable terrain and much better accessibility than the easterly route. The Applicant still prefers the southerly route between points N and O. This route would cross the Madison River about one-half mile below the entrance to the Bear Trap Primitive area. However, because of longer spans and much higher conductor elevations than now exist on the 50-kV line it would replace, the impact could probably be minimized. The northerly route between N and O would be in proximity to Highway 289 for several miles and would result in construction activity on two routes in this area because of the removal of the 50-kV line along the southerly route.

(d) Bozeman-Trident

The applicant agrees that this alternative to the Clyde Park-Bozeman segment is inferior.

(e) Bozeman-Clyde Park

The applicant agrees that the preferred route for this segment will have less impact than any of the alternatives and is preferable to the Bozeman-Trident alternative developed for consideration by the DNR.

(f) Clyde Park-Gardiner

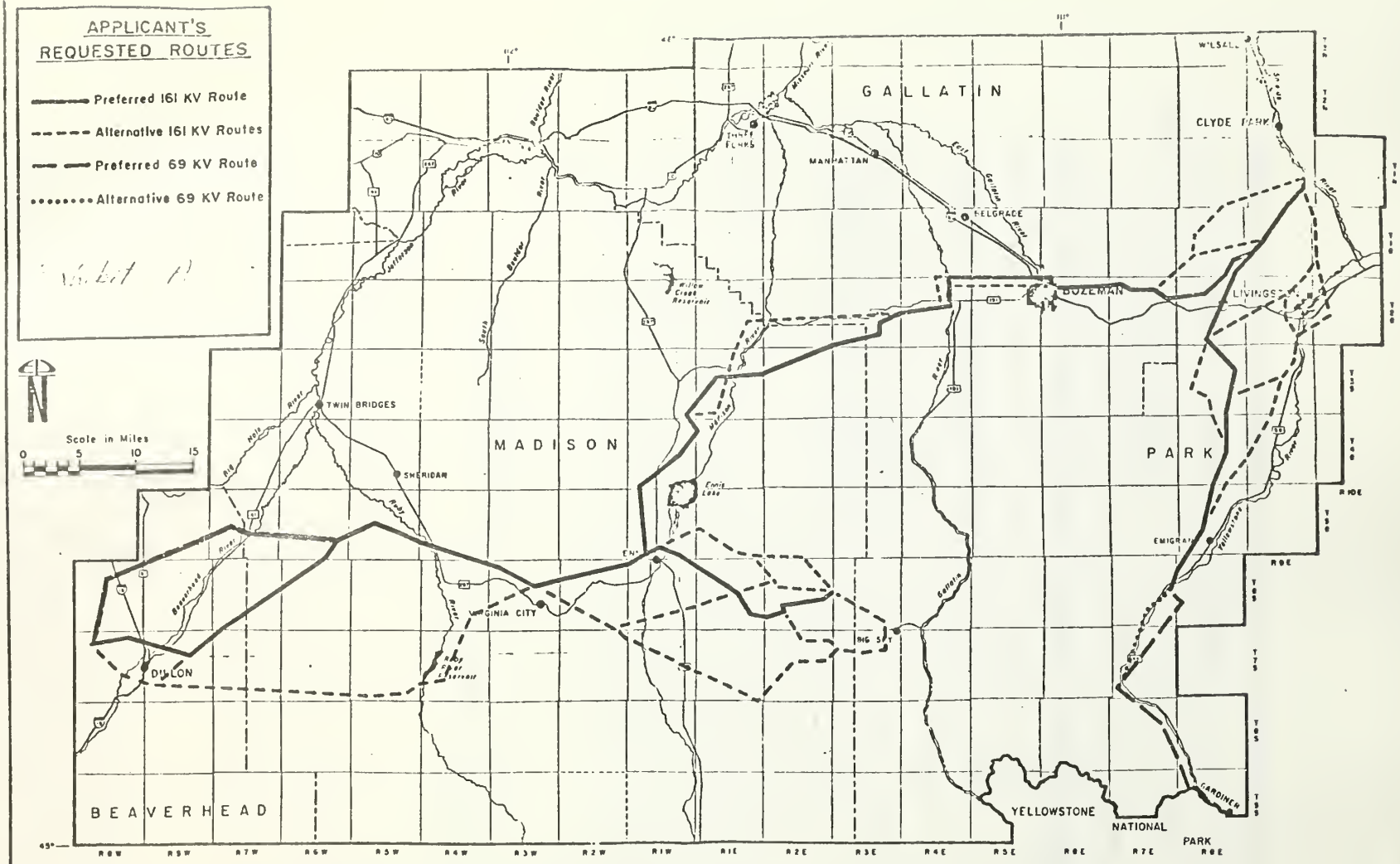
The Applicant believes that EIS under-estimates the land use impact that would result from following an alternate route in closer proximity to Livingston than is our preferred

in the Gallatin Canyon. We expect information from Dr. March and Mountain Bell by March 10. (Dr. March's report dated March 11, 1976 and supplemental data by The Montana Power Company are attached hereto as Exhibits "B" and "C" respectively.)

Respectfully submitted this 15th day of March, 1976.

THE MONTANA POWER COMPANY

BY: /s/
JOHN W. ROSS, Attorney



CLYDE PARK—DILLON 161 KV TRANSMISSION LINE PROJECT ENERGY PLANNING DIVISION, DNR&C 1976

08 29 01

THE MONTANA POWER COMPANY
GENERAL OFFICES 40 EAST BROADWAY BUTTE, MONTANA 59701 · TELEPHONE 406 / 723 5421
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March 26, 1976

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MAR 29 1976
MONT. DEPT. of NATURAL RESOURCES & CONSERVATION

Dr. Albert Tsao
Administrator
Energy Planning Division
Department of Natural Resources
and Conservation
32 South Ewing
Helena, MT 59601

Re: Clyde Park-Dillon Application

Dear Albert:

Based on my discussions with you last week, I got the impression that you were considering recommending on the Clyde Park-Dillon application that just a 161 kV line be built up the Gallatin. As I mentioned to you on the phone, our position has been and still is that this project should be constructed as set forth in our original or amended application.

Your considering recommending just the construction of a 161 kV line up the Gallatin Canyon is unreasonable and infeasible. As I mentioned to you on the phone, construction of a 161 kV line up the Gallatin Canyon would interfere with radio, TV and other communications in the Canyon and this interference is confirmed by Professor March's study at MSU, which we have forwarded to you. Secondly, long-term planning is necessary to minimize voltage problems, provide good reliability of electric service and minimize the harmful effects on the environment. The Clyde Park-Dillon project, as first submitted to the Department of Natural Resources and Conservation, would have provided the best long-term solution to the electrical needs of the South Central portion of Montana, particularly the Upper Yellowstone, Bozeman, Big Sky, Ennis and Sheridan areas. However, an amended application was submitted because of the possible degradation of environmental qualities in the Tom Miner-Buffalo Horn Porcupine area. The original application was and still is the best solution to the problems of South Central Montana if only electrical considerations are made.

However, because of the Buffalo Horn-Porcupine area consideration for wilderness classification, an alternate method of providing electrical service was proposed to you to meet the

electrical loads. The amended plan, though not as good electrically as the original proposed plan, would provide adequate long-range benefits to the Ennis-Sheridan area, would provide adequate voltage levels in the Upper Yellowstone, including Yellowstone Park, Big Sky areas and would provide reliability of electrical service to the Bozeman area. Construction of transmission facilities:

1. is necessary to provide an adequate voltage level in the Upper Yellowstone area,

2. is necessary to meet the expected electric demands of Big Sky,

3. is necessary to provide for the inadequacy of expected voltage levels in the Ennis-Sheridan area expected by 1980, and

4. is necessary to provide for reliability of service for the Bozeman area.

It is imperative that planning be made to include areas where existing electrical problems require immediate solutions and the anticipated areas where providing adequate electric service in the future is forecast. This planning must be made so that a minimum of environmental degradation is possible. Good engineering planning requires adequate studies and route selection; to conduct adequate studies and route selections requires sufficient time. We have tried to provide you with adequate information on which you could determine the need for the facilities and suitable routes for the needed facilities. We believe that this is one of the major reasons behind legislation such as the Major Facilities Act -- to provide for meeting the electrical needs of customers in an orderly fashion, on time and with a minimum of construction of transmission facilities.

Construction of a 161 kV line from Bozeman to Big Sky does not solve the existing voltage problems in the Upper Yellowstone Valley, does not provide reliable electric service to the Bozeman area, does not meet the long-term needs of the Ennis-Sheridan area and, in our judgment, does not provide for any long-term planning in the South Central Montana area.

In our communications with you, we have tried to emphasize that this is an intricate part of our transmission grid and to ignore these other areas in your recommendation we think would be irresponsible and unreasonable.

Sincerely yours,

John T. Evans
Asst Chief Engineer and
Manager of Engineering

JTE/jd
cc: Joseph Sabol

Big Sky of
Montana, Inc.
Big Sky
Montana 59716
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RECEIVED
MAR 12 1976
MONT. DEPT. OF NATURAL
RESOURCES & CONSERVATION

Chairman of the Board

March 11, 1976

Mr. Gary Wicks, Director
Department of Natural Resources &
Conservation
Helena, Montana 59601

Dear Mr. Wicks,

Permit us to submit some comments on the proposed Clyde Park - Dillon 161 KV Power Line which was set forth in the draft Environmental Impact Statement presented by your department. We are concerned about some of the comments made at the hearings which attempts to set Big Sky in the light of being a small, single company community. Anyone coming to Big Sky to see for themselves would have no problems identifying Big Sky as a total community such as Manhattan, Virginia City, Ennis and many other similar Montana towns.

The community of Big Sky has a population which varies between 300-400 people, has over 600 property owners, employs between 200 and 500 employees depending upon the season, consists of many businesses and homes owned privately by persons or entities other than Big Sky, such as shops, restaurants, hotels, etc. (see enclosed list) and includes a Post Office, sewer district, volunteer fire department, a road maintainence department, a private water utility, and security department like community services provided in other towns and communities in Montana.

Just because Big Sky was started by Big Sky of Montana, Inc. 6 years ago and has grown into a substantial community in a short period of time, it doesn't mean it should be considered a stepchild different than any other community in Montana, many of which are much smaller in population and activities than Big Sky.

Without doing any research on the subject, we would hazard to guess that not many communities in Montana pay as much as or anymore property taxes per capita than property owners at Big Sky. A recent study at Montana State University indicates that the community of Big Sky, currently and projected, pays to the'

BIG SKY
MONTANA

county and State bodies 5 times more than it receives in returns in services from these public bodies. As for the proof that Big Sky is, indeed, a community, we are enclosing copies to give you a few samples of all the letters written to the Governor and State Highway Department in February this year in support of improving the present highway access to the community of Big Sky.

We appreciate your understanding and if we can provide further information, please do not hesitate to call on us or any of the 40 different businesses or activities which are functioning in the general area of Big Sky.

Sincerely yours,

Gustav Raaum

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MAR 19 1976
MONT. DEPT. OF NATURAL
RESOURCES & CONSERVATION

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Federal Building
Missoula, MT 59801

8430

MAR 18 1976

Albert C. Tsao, Administrator
Energy Planning Division
Montana Dept. of Natural Resources & Conservation
32 South Ewing Street
Helena, MT 59601

Dear Mr. Tsao:

Following are the Forest Service comments on the draft Environmental Impact Statement Clyde Park-Dillon Transmission Line. We are pleased to have this opportunity to review this statement and are especially appreciative of your extension of time for our comments.

Your statement covers a wide spectrum of considerations, identifies the various alternatives, and discusses many of the probable impacts which may occur as a result. We believe it is generally well done. It includes extensive planning data that will be useful in our planning for the area.

One of the concerns we know you have is the status of land use planning on National Forest lands and the relationship of this planning to possible transmission line corridors across National Forest lands. Specifically, several proposals involving National Forest lands have been made by the applicant or the public. These would connect Big Sky with an Ennis substation via the Madison Range; upgrade the service from Bozeman to Big Sky via the Gallatin Canyon; and upgrade service from Clyde Park to Gardiner.

Portions of Jack Creek and Cedar Creek have been inventoried as either roadless or essentially roadless and may qualify for wilderness study.

We cannot act upon a corridor crossing in Jack Creek or Cedar Creek until an approved land use plan has resolved the issue of potential wilderness study. The Beaverhead National Forest Land Use Plan will address this situation. This land use plan and draft environmental statement (Beaverhead National Forest) should be available for public review within 8 to 12 weeks. It is

estimated that the final land use plan for the Beaverhead will be completed in early fall 1976. At this time we will be determining future use of these lands.

It is probable that the Beaverhead Forest Land Use Plan will be followed in late fall or winter 1976 with a project environmental impact statement. The statement will cover the various alternatives available on both the Beaverhead and Gallatin National Forests for providing service to Big Sky. It will also address the use of National Forest lands for transmission lines in the Yankee Jim Canyon area near Tom Miner.

In summary, until the Beaverhead National Forest Land Use Plan and joint Beaverhead-Gallatin project environmental impact statement are completed, we will be unable to commit National Forest lands to the construction or reconstruction of transmission lines. Your draft statement will be very useful in providing a data base and a discussion of alternatives for use in our planning process.

A second consideration we have is the question of "need" which, according to your process on page 7, must be resolved before engineering and environmental studies can proceed. Since the draft statement contains a discussion of these engineering and environmental studies, it can be concluded that "need" has been established. However, the Chapter 3 discussion on need does not contain an adequate conclusion that "need" does exist. We feel this chapter should be strengthened.

Nearly all "need" discussion in the draft relates to Big Sky. An expansion of "need" related to Gardiner, Livingston, Mammoth, etc., seems necessary. In addition to Big Sky, there is a very large area of private land in the Gallatin Canyon area that may or could be developed.

There are approximately 110,000 acres of private land in the Canyon area south of Gateway. Developments such as the proposed Canadian Limited Development, Beaverhead Creek (south), and Karst #1 are examples that might expand the "need" discussion.

From a systems point of view and considering the extent of the study area, some discussion of planned electrical load at Ski Yellowstone would seem appropriate, as would the relative need and/or desirability of a "loop" for system reliability.

Assuming the "need" issue is clarified, the question of the best engineering solution to meet the need is yet to be resolved, primarily because of the time factor of load growth. It appears

that all proposed lines are not required now and the staged construction of line segments as described on pages 58-60 seems reasonable.

Clarity of purpose and understanding would be improved if the description of how this document fits into the total decision-making process was strengthened. This should include a statement of how agency and public input is used.

Additional comments and suggestions on the draft environmental impact statement are attached. These have been grouped into four broad areas: inventories, analysis, evaluation, and technical comments. The assignment of a particular comment is rather arbitrary, realizing that many such comments could appear under more than one heading.

Thank you for providing the opportunity to comment on your draft environmental impact statement.

Sincerely,

STEVE YURICH
Regional Forester

Attachment

cc: Gal
Bvhd
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2300
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1000
WO - P&L (6)

INVENTORY

We have a concern for the level of intensity of inventory data especially in the vegetation and soil sections. Both the vegetative habitat types and soil association inventories are much more refined than needed to make decisions on corridor selection. Conversely, neither are detailed enough to satisfy the on-site investigation needed later for centerline approval.

In order to handle the intensive inventory in the analysis, a good deal of grouping of similar types are necessary. This could be done in the design of the original inventory, thereby, saving manpower and dollars as well as maintaining the necessary accuracy of data.

The subsectional level of land unit mapping with the inferred relationships of habitat type association built in, as was done by Herb Holdorf on this study but not used and as is being done on the Anaconda-Hamilton study, is a practical solution to some of these otherwise costly inventories whose refinement has little bearing on the corridor selection process.

In addition, the soil unit groups and the interpretations for soil erodibility hazards and road construction suitability are not shown so there is no way to determine how data was used. Lack of opportunity for Forest Service involvement in interpretations or review of such interpretations makes it difficult to answer some data questions on Forest Service lands.

ANALYSIS

We are quite concerned over the change in the matrix for this project over what was mutually developed for the Colstrip project and was jointly discussed and agreed upon last May 6 for both the Clyde Park-Dillon and Anaconda-Hamilton projects.

While we agree with the principal involved--that of simplifying the matrix--we feel a good deal more has been lost than gained.

Several major concerns with this revision are:

1. Since the transmission line construction, operation, and maintenance activities are not shown and analyzed separately, it required that the rater, the reviewer, or the public to visualize the entire line and its potential impacts at one time. The chances of overlooking an important impact are great.

2. In addition to #1 above, there is not the capability of backtracking the process to determine what transmission line activity resulted in an unsuitable rating. This seems very necessary if we are to mitigate adverse impacts. Backtracking for the rater is important and also to allow the public to track the process.

3. The categories on the X-axis are not consistent. Those broken down by very poor, poor, fair, etc., have been quantified prior to being placed on the matrix. Once on the matrix the rating values, in most cases, become relatively automatic. Other items to be rated such as urban areas, small communities, etc., are analyzed and rated directly on the matrix.

   To remain consistent, all analyses should be done either before values are placed on the matrix or all analyses done on the matrix itself. In the case of the former, the matrix becomes nothing more than a recording form.

4. The de-emphasis of social and economic concerns on the X-axis limits the process largely to environmental factors. This appears to place too high a concern for environmental factors which are more easily mitigated than the potential social and economic impacts.

5. All subjective suitability categories, as shown on pages 71-73, must be defined, otherwise, no two people can come up with the same rating. Since alternative corridor selection is based on the values assigned to these suitability categories it is critical that they be defined. For example, under Vegetative Recovery Rate is very rapid intended to mean "in the first growing season," "the first year," or do you quantify it in another manner? Under Soil Erodibility, how are each of the ratings defined? In tons of soil loss per acre or what?

6. Throughout the report many references are made to the wilderness-like character, roadless quality, etc., of the Jack Creek-Cedar Creek area. This is generally true and as an agency we have inventoried much the area as a combination of roadless and essentially roadless. In analysis, one must not overlook the significant amount of private lands included in this general area (essentially a checkerboard pattern) and the rights of reasonable ingress and egress to such private lands.

CORRIDOR SELECTION

In chapter 6, page 292, we think it would have been helpful to display the value weighings that were used for the individual elements at each mapping level. Although the process is briefly described on page 296, it would appear desirable to show the actual weights used.

Aside from our concern for having a strong methodology to assist in the decisionmaking process, we believe a number of our concerns expressed also deal with visibility and credibility with the public. The best decisions may go wanting if the public does not understand how they were derived. The public may not agree with the decision or recommendations, but understanding and acceptance is more likely if the decisionmaking process is visible in all respects.

The draft environmental impact statement for Clyde Park-Dillon 161 kilovolt and 69 kilovolt transmission lines indicates concern with cultural resources appropriate to the planning step of the project. See pages 251-2 and Figure 6-19. Four sites in the study area are listed on the National Register of Historic Places. If these are to be adversely affected it will be necessary to follow procedures listed in 36 CFR 800. There are 216 archaeological sites in the study area. Most are known from existing inventories.

There will need to be an intensive on-the-ground examination of the selected corridor for cultural resource sites before ground disturbing activity occurs. An evaluation of all sites will also be necessary for compliance with E.O. 11593 and the Historic Sites Preservation Act of 1966.

TECHNICAL COMMENTS

1. Page 3. Upper Porcupine (Gallatin National Forest) "roadless" area, the same category as Jack Creek or Cedar Creek (Beaverhead National Forest) rather than a "new study area."

2. The Forest Service role, described on page 4, does not reflect the extent of participation which has taken place, particularly in the areas of soils, and general coordination from the Regional Office and Engineering. This comment applies to the acknowledgment section, page 345.

3. Information on possible mitigating measures are included in separate subsections of chapter 6 (example page 173). Most of these apply to more than one subsection. A separate section in chapter 6 on mitigating measures is recommended.

4. The term "intermediate terminal," page 7, is confusing. This term is used extensively in the engineering writeup. Intermediate and terminal are contradictory words. On page 60, the wording "intermediate connection" is used. "Substations" or "intermediate taps" are also appropriate terms.

5. A summation of curves in Figure 3-3, page 32, would be more useful than the separate substation loads described.

6. Dimensions should be included in Figure 4-1, page 53, to more clearly show the impacts of underground transmission.

7. In Table 4-2 and the associated discussions, pages 56 and 57, it is recommended to include total installed costs of underground, not just material costs. Also, a comparative table or written summary of underground versus overhead costs, operation constraints, and environmental impacts would be very useful.

8. On page 64, it mistakenly appears the cost basis of 161KV line is for single pole structures. The investigation and analysis of single pole versus "H" frame 161KV construction is not pursued adequately anywhere in the report. Single pole construction may be the best practical measure to mitigate impacts, stricking a balance between underground and "H" frame overhead. A comparison should be made betwen single pole and "H" frame, including cost, right-of-way requirements, structures per mile, reliability, impacts, and any other appropriate data.

9. The discussion on helicopter construction, pages 64 and 66, is inconclusive. A per pole construction cost of $210-$490 may be reasonable, especially when compared to total conventional construction costs, including roads in steep terrain. Partial use of helicopters or use of smaller machines to string the sock lines may be reasonable and should be analyzed. (See item No. 2, page 173.)

10. There may be differences between the proposed road design and construction policies on pages 66 and 67 and those described on page 172. The road impacts could be more extensive than the direct impacts of the transmission lines.

11. On page 287, the second paragraph, is the expectation not to see a transmission line greater in a National Forest than a wilderness?

12. Figure 6-21, page 292, would be easier to read if the lettering in the boxes were reversed.

13. By leaving out the line construction, operation, and maintenance criteria and the "submodel" in the matrix process, subjective thinking and lack of documentation can easily occur. The matrix appears deficient in social/economic concerns. While social/economic concerns may be difficult to include in the matrix, they should be evident somewhere in the process.

14. Page 302, paragraph 7.1, last sentence, change "overlay" to "overlap."

15. On page 302, paragraph 7.1 states that the E.P.D. third and fourth level maps show the E.P.D. best corridor and MPC preferred corridors. The maps in this report do not show such information.

16. Page 194. Raptors. The conclusion that pesticides caused the decline of the falcon is a rather controversial deduction--this is supported by several authors but is probably more accurately an opinion.

17. Page 203. Elk. In southwest Montana most elk movement to lower elevations probably occurs in October and later.

18. Page 208. Grizzly Bear. Our suggestion would be to strike the reference of requiring a wilderness-like area. Remote areas are important; many non-wilderness like areas are also important, i.e., North Fork of the Flathead. The function of tolerance by man seems the most important element. Recent study and deliberation by the Forest Service in attempting to delineate Grizzly habitat suggests a considerably reduced distribution than that delineated on page 208. A map with the distribution boundary as we have inventoried is enclosed.

19. Page 229, first paragraph. The statement can be true but is primarily a negative assessment. There are, of course, mitigating management opportunities such as closing roads, prohibit hunting, etc. As you have suggested elsewhere, the openings could have beneficial aspects, also, dependent upon the species involved.

20. Page 250. Recreation Map. The map omits Camper Village, a large campground (private) near Big Sky.

21. Page 252. Map of Specially Managed Areas. The map should show the Monument Peak, Porcupine Buffalo Horn, Lone Mountain and North Hilgard inventoried roadless areas as non-selected roadless areas. Maps delineating these areas are attached.

22. Page 255. Question the appropriateness of including the quote from the Nation-wide Outdoor Recreation Plan, "Outdoor Recreation--A Legacy for America." To be sure, wilderness is one viable, potential alternative use. To simply stop the analysis with the cited quote without discussing, for instance, potential recreation uses simply suggests a bias towards wilderness. The point being, the statement is but one point of view, it should probably be omitted or the section expanded to include other alternatives.

23. Page 282, last sentence of 361. That the wedge hypothesis will be more accurate is an opinion, i.e., subject to professional differences.

24. Pages 283-288, Section 6.3.3.5.--Aesthetics. A specific concern deals with the visual frequency model which equates visual frequency with nearness to and frequency of highway traffic. That is valid only if all proposed corridors follow the same transportation routes. The other variable that must be considered relative to visual frequency is: How much of the corridor is actually seen from these routes?

25. Page 304. Alternative D-E-F. The impact on stream sedimentation (risk) for the mountainous portions of this possible corridor is probably no different than the risk for other corridors crossing the Madison Range.

26. Page 305. Locally the West Fork of the Gallatin River is not considered an excellent sport fishery.

27. Page 308. Alternative RR-Big Sky. We would add that the risk for stream sedimentation is high because the line location would be on steep ground and relatively close to the river.

28. Page 323. The second paragraph, this page, makes reference to possible use of the Spanish Peaks-Cedar Creek by as few as a "sow grizzly and cubs." This, of course, is entirely possible and if a verified observation is referred to it should be stated as fact rather than suggested as a

possibility. (We are very interested in observations in this area as it is outside of the area we have been able to determine as grizzly occupied.)

29. Page 325. As suggested elsewhere, the investigation and analysis of single pole versus "H" frame and difference between single pole 161KV and 69KV construction requirements is not adequately discussed. (i.e., what difference in clearing is required single pole 161KV upgraded existing 69KV, what difference in pole height?)

30. Page 326. Ennis-Big Sky Segment. In comparison of the Jack Creek and Cedar Creek proposed routes, the Cedar Creek corridor involves a greater distance of steep, rugged, mountainous terrain. Some studies and correspondence relate to a road in Cedar Creek. The primitive trail of reference is not on a location suitable for upgrading or for construction use.

31. Page 327. The alternative segment H-F, which would cross south of Lone Mountain, would of necessity cross areas of significant avalanche hazard which would have to be considered.

32. The conclusion or assumption on page 337 that the 69KV line in the Gallatin Valley could be upgraded (probably to 161KV) with "minimal visual impact" is not supported by evidence or analysis and may not be correct.

33. Page 338, second paragraph, recommend deleting "can" in the first sentence to make this definition more accurate. Paragraph 4, the greatest potential risk to human life due to power outages is probably ski lift failure. Backup drive, brake, and evacuation systems are normally required as standard ski lift components. If there are other serious health/safety problems due to power outages, they should be specified more clearly by Big Sky. We agree that if such conditions exist, the most reliable solution is on-site energy production versus more transmission lines.

34. The existing 69KV line in the Gallatin Valley passes through sites of many existing summer homes (approximately 60 such homes directly involved on National Forest lands). The impact of line construction, upgrading, etc., on these properties must also be evaluated.

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
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Billings, Montana 59107

911:1792

MAR 12 1976
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MAR 16 1976
MONT. DEPT. OF NATURAL RESOURCES & CONSERVATION

Mr. Albert C. Tsao
Administrator, Energy Planning Division
Montana Department of Natural Resources and Conservation
32 South Ewing Street
Helena, MT 59601

Dear Mr. Tsao:

We have reviewed your Draft Environmental Impact Statement on 161-kV and 69-kV transmission lines extending from Clyde Park to Dillon and surrounding areas. Your Energy Planning Division is to be complimented on the collection and depth of technical material on the environment of the study area. The maps and illustrations are well done and the overlays provided with the draft are valuable tools for review. However, we have several suggestions regarding presentation of the technical material, and analysis of the technical data to determine impacts of the power line proposal.

Although references are made throughout the report to both Forest Service and Bureau of Land Management lands, the draft does not include an indication of the Federal action which must be taken if the Montana Department of Natural Resources and Conservation approves the Montana Power Company application for the transmission lines. Such a treatment should be provided in the draft.

In making the identification of concerns for transmission corridor selection on pages 8, 70, and 293, the use of the terms "least" and "greatest presents technical problems in discussing optimization criteria. We would recommend the following as a set of criteria for studying the proposed line:

1. Risk for stream sedimentation
2. Impact on biomass productivity on rangeland
3. Impact on biomass (wood) productivity in forest land
4. Impact on terrestrial fauna
5. Cost of construction and maintenance
6. Reliability
7. Impact on existing land use
8. Visual impact

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An ideal corridor would maximize reliability while minimizing the other criteria. The objective of the selection process is to locate the optimum corridor. This is done by weighing the criteria, adjusting for the positive nature of reliability, and then through a computerized grid process selecting the route for which the sum of the listed impacts is least.

A possible shortcoming of this EIS is that the crux of the analysis may not be adequately documented. Corridor selection depends heavily upon the weights given the various selection criteria such as third level maps. An apparent reference to this weighing process is one sentence in paragraph 5, page 296. This appears insufficient from the standpoint of public disclosure. Also, on page 296, paragraph 7, it says that the overlays show "all potential corridors . . . without preference." All of the potential corridors are not shown, only the one recommended by the Energy Planning Division and the preferred and alternate routes presented by the applicant. In this presentation, it is difficult for the reader to tell which is which. This causes problems in tracking the weighing process and the step between the computerized selection process and the Energy Planning Division's tentative selection (page 296, paragraph 7).

Although the material contained in Chapter 6 is technically sound, the fragmented presentation makes the narrative difficult to follow and, in our opinion, is detrimental to the impact analysis. A large volume of material is presented which includes inventories, impacts, and mitigating measures for the various environmental components (geology, soils, vegetation, etc.). This single chapter contains roughly two-thirds of the document content. We believe the document would be more easily understood by reviewers and therefore more usable if the inventory, impacts, and mitigating measures were displayed in separate chapters. The fundamental reason for environmental impact statements is to analyze impacts and, where appropriate, to develop measures to mitigate those impacts. Because impacts and mitigating measures are such critical factors, we believe they should be treated in separate chapters. In addition, this would more closely parallel the general format used by Federal agencies to prepare environmental impact statements under the National Environmental Policy Act.

The Title of Chapter 7--Site Specific Impact Evaluations--is a misnomer. As currently written, this chapter is primarily a comparison of alternatives, with some reference to "site specific" impacts. For example, part 7.8.6.14 alternative FF-GG states that "six archaeologic sites, one potential settlement area, one fishing access site, one area of irrigated land, and one airport are included in this corridor. The potential impacts of this corridor could be mitigated by careful center line location." If the intent of Chapter 7 is to analyze site specific impacts, an analysis of the lines impact on the specific sites included in the above statement should be included.

On page 261, Figure 6-20 states that "these condominiums represent the pinnacle in recreation development." We question this statement. Condominiums are seldom considered recreation facilities, and even less often considered a "high point" in recreation development.

Our reviewers felt that without Technical Appendix B, we were unable to evaluate the magnitude of economic need for this project and comment on this area of the draft.

Tables and charts on the left hand pages throughout the text appear to be printed upside down. This is particularly evident in Table 6.2, pages 94-142. This material should probably be in the Technical Appendix, but either way it should be printed so that portions on opposite pages can be read without flipping the document.

The packet of maps is too heavy for the back cover. Either the back cover should be strengthened or the packet should be separate from the rest of the document. Both the large and small transparent corridor overlays match poorly on the other maps. This should be corrected and overlay guide marks provided.

Sincerely yours,

Edwin Zaidlicz
State Director

cc:
Dillon District
Beaverhead National Forest, Dillon

HENRY M. JACKSON, WASH., CHAIRMAN
FRANK CHURCH, IDAHO
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WILLIAM J. VAN NESS, CHIEF COUNSEL

03 15 0

United States Senate

COMMITTEE ON
INTERIOR AND INSULAR AFFAIRS
WASHINGTON, D.C. 20510

RECEIVED
MAR 15 1976
MONT. DEPT. OF NATURAL
RESOURCES & CONSERVATION

9 March 1976

Mr. Albert C. Tsao
Administrator
Energy Planning Division
Montana Department of Natural
Resources & Conservation
32 South Ewing
Helena, Montana 59601

Dear Mr. Tsao:

This letter responds to your request for public comment on the recently released draft environmental impact statement on the Clyde Park-Dillon 161 kilovolt and 69 kilovolt transmission lines.

I have a particular interest in the proposed extension of the power line to Big Sky from the west up the Cedar Creek drainage. The line would traverse a portion of the Taylor-Hilgard Wilderness Study Area which is contained in S. 393, my Montana Wilderness Study Act now pending in Congress.

In seeking to persuade me that a transmission corridor should be constructed up Cedar Creek, proponents of the Ennis-Big Sky line have stressed two points: (1) the engineering difficulties, if not the impossibility, of replacing or expanding the 69 kv line now coming in from the east and (2) the constant threat of interruption from the existing source. In short, they have stressed that the Cedar Creek line is the only feasible source of additional supply to Big Sky, and without it, the resort might fail.

I am not an engineer, and I must defer to those who understand that subject matter better than I. My attention was therefore drawn to the statement on page 59 of your Department's draft EIS which states:

> "The alternatives of routing a new 161 kv line through the Gallatin Canyon or of upgrading the existing 69 kv line to 161 kv and building no other new lines to Big Sky <u>are feasible from an engineering viewpoint</u> in that both could provide the projected necessary increase in power capacity." (Emphasis added)

The EIS goes on to address itself to the reliability of a single line from the east, but makes two suggestions which might make less critical the reliability factor: an alternative energy source and a strict program of conservation.

Although I have stated in writing to the Chief of the Forest Service that I would not object to construction of the Cedar Creek line if environmental objections were overcome, I remain deeply concerned that alternative routes not be rejected if they are technically feasible. The EIS paragraph quoted above is the first objective engineering analysis I have seen of the feasibility of upgrading the Gallatin Canyon line.

Very truly yours,

Lee Metcalf

CC: Honorable Mike Mansfield
Honorable Thomas Judge
Mr. Gary Wicks
Mr. Joe McElwain

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

Environmental Sciences Division
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John S. Anderson, M.D.
DIRECTOR
A. C. Knight, M.D.
Acting Director

RECEIVED
MAR 05 1976
MONT. DEPT. OF NATURAL
RESOURCES & CONSERVATION

March 3, 1976

Department of Natural Resources
and Conservation
Attn: Gerry Knudsen
32 South Ewing
Helena, MT 59601

Dear Gerry:

Members of the Air and Water Quality Bureaus reviewed the draft environmental impact statement for the Montana Power Company's proposal to build power transmission lines from Clyde Park to Dillon and surrounding areas.

Persons in the Air Quality Bureau recommended against burning slash (unmerchantable timber) which will be cut to clear a right-of-way for the power lines.

"Burning slash causes the emission of particulates, carbon monoxide, hydrocarbons and other pollution. Additionally, slash burning is an unnecessary waste of a natural resource," the reviewers said. "If the timber is not marketable, it should be disposed of by chipping and tilling it into the soil. Slash burning is not recommended by the Air Quality Bureau."

The following guidelines were also recommended for clearing trees and brush:

1. All merchantable limber larger than 6" diameter should be sold.

2. Where possible, limbs and small trees should be lopped and scattered.

3. Cull material should be sold for chips or yarded for firewood at locations accessible to the public.

Construction and vehicular activity can cause dust problems. Dust abatement activities such as the application of water or dust oil must be used to prevent a public nuisance, the Air Quality reviewers suggested.

The person reviewing the proposal for the Water Quality Bureau said the portion of the impact statement dealing with aquatic fauna, pp. 216-225, appeared to be "...well written and well documented..."

"...It does a very good job of discussing the potential impacts on water quality and associated aquatic life and various mitigating measures," he said.

Section 7.2 of the impact statement, Impact on Stream Sedimentation (of various proposed routes), was well written, the reviewer said.

The Water Quality person agreed with the recommendation on page 308 to upgrade the 69-kV transmission line which serves the Big Sky Resort to a 161-kV line rather than construct additional lines. Upgrading the Gallatin Canyon line would reduce the risk of additional stream sedimentation, he said.

Additionally, the reviewer noted that when compared to various alternative corridors proposed to enter the resort from the west, upgrading the Gallatin Canyon line, again, would produce less chance of stream sedimentation.

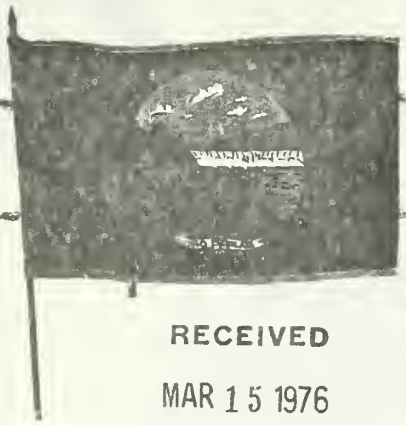
Thank you for the opportunity to comment on the environmental impact statement.

Sincerely,

Thomas M. Ellerhoff
Technical Writer

TME:jms

03 15 05



STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

RECEIVED
MAR 15 1976
MONT. DEPT. of NATURAL RESOURCES & CONSERVATION

March 15, 1976

RF 20(4) Big Sky Spur
Draft Environmental
Impact Statement
Clyde Park to Dillon

Albert C. Tsao, Administrator
Energy Planning Division
Department of Natural Resources
Helena, Montana 59601

Dear Mr. Tsao:

The Montana Department of Highways has reviewed your Draft Environmental Impact Statement on Clyde Park - Dillon 161 Kilovolt and 69 Kilovolt Transmission Lines. In general, the document appears satisfactory from our jurisdictional standpoint. However, additional commentary may be of assistance in your continuing evaluation of the applicant's proposal.

In several discussions concerning Big Sky and corridors thereto, the possibility of a road connecting Ennis and the Madison Valley to Big Sky is directly noted or inferred. As noted on page 261 local concerns have sought an all weather connection. Even though there have been some internal discussions regarding this subject, the Department's long range planning at this time does not contemplate such a project. Presently, the Federal-aid Primary Route 50 Spur terminates at the Mountain Village; the Department does not anticipate changing that terminus.

The visual impact of proposed access roads may be further reduced by suggesting that the applicant include as part of the guidelines (page 66), and/or under mitigating measures (pages 171-2), a requirement that access road alignments leaving public roads and cutting directly into timbered areas be designed with sections of opposing oblique centerline. This technique would reduce harsh linear patterns associated with access roads as well as differentially screen the cut and fill sections as the road enters the forest edge. The applicant should also consult with the appropriate Department of Highways Division Construction Supervisors and county authorities as to desireable points of access.



The Department has several highway improvements scheduled for the study area. Prior to determinations on the final location of centerlines and structure placement, the applicant and/or the Energy Planning Division may want to consult with the Department of Highways Preconstruction and Right-of-Way Bureaus. Early coordination may preclude costly utility relocations at a later date.

The opportunity to comment on this document is appreciated. If we can be of further assistance, please advise.

Yours very truly,

H. J. ANDERSON
DIRECTOR OF HIGHWAYS

By: Stephen C. Kologi
Stephen C. Kologi, P.E., Chief
Preconstruction Bureau

33-SCK/REH/dt

cc: J. R. Beckert
H. G. Wheeler
S. C. Kologi
R. E. Champion
D. S. Johnson
K. F. Skoog
R. E. Hall
R. B. Dundas
R. C. Holmes
F.H.W.A. 08-30.22 B

STATE OF MONTANA

DEPARTMENT OF
FISH AND GAME

Helena, MT 59601
March 11, 1976

RECEIVED
MAR 12 1976
MONT. DEPT. OF NATURAL
RESOURCES & CONSERVATION

Mr. Gerhard M. Knudsen
Environmental Coordinator
Department of Natural Resources
Helena, MT 59601

Dear Gary:

As requested, our regional staff has reviewed the Dillon to Clyde Park transmission line. Subsequent to that review they prepared the attached comments.

I hope these comments will be of use.

Sincerely,

James A. Posewitz, Administrator
Environment & Information Division

JAP/sd

Enc

COMMENTS ON DILLON-CLYDE PARK EIS

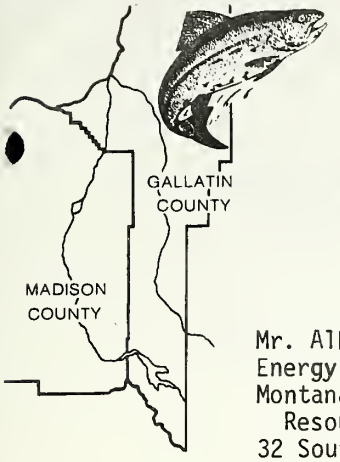
The Department of Natural Resources has presented a representative evaluation of this proposed power line system. Needs for the line, alternatives to it, and engineering design data are well presented, so that the reader can interpret these parameters. In the chapter on corridor selection, the section on fauna (Section 6.3.2.5.) has taken into consideration the value, vulnerability, and ecology of individual species. These parameters are considered in recognizable units that relate to transmission line siting and impact evaluation. The subsection on aquatic fauna (III.C.1.) discusses effects and possible mitigating measures for the important aquatic impacts of: (1) sedimentation, (2) alteration of streamflow, (3) organic debris, (4) thermal and (5) sanitary waste and toxic material. The Montana Department of Fish and Game recommends that when new transmission lines are constructed all possible measures be taken so there is no impact on the above mentioned aquatic parameters. The subsection on terrestrial fauna (III.C.2.) discusses effects and possible mitigating measures for the important impacts of: (1) displacement, (2) mortality, (3) habitat alteration, and (4) stress. These impacts are discussed in the short and long term. This is good because it takes into consideration the animal in relation to the vegetation and the land. Again, it is recommended that in the construction of any new lines all possible measures be taken to minimize or eliminate these impacts.

The Montana Department of Fish and Game recommends that in the construction of power lines, existing corridors be used so impacts on wildlife are less detrimental. If needed, the department recommends an upgraded line from Bozeman up the Gallatin Canyon to Big Sky within the existing corridor. In regard to the line from Dillon to Ennis, no "need" data is presented in the EIS. Reliability of service may be posed as an answer, but this seems presumptuous when considering the line segment from Ennis to Big Sky. The Ennis-Big Sky area lies in a major fault zone, has deep snow fall, high erosion hazard, steep terrain at high elevation, and is roadless. Constructing a line through this area would present environmental problems on a large scale and the existing integrity of the area could not be maintained. We agree with the wedge hypothesis as presented on page 281, that a line across the Madison Range could definitely act as a lever to promote development of the area and reduce its value to wildlife. In Chapter 7 of the EIS, Site Specific Impact Evaluation, Section 7.5.2., it states "The Ennis-Big Sky segment presents the greatest potential for adverse impacts to large mammals." We concur with this statement. For the above reasons, we oppose power line construction crossing the Madison Range.

If additional power is needed in the Madison and Ruby Valleys, why not upgrade existing lines from the Renova substation.

Of the two sources of power used to get power from Bozeman to Big Sky, the department would recommend the power source at Trident rather than Wilsall. This route would disturb less wildlife habitat, by following close to an existing highway system.

The proposed corridor which we recommend in the Yellowstone Valley is W-X-Y-AA-BB-CC-DD-EE-FF (East). This line appears to follow close to the existing corridor. This route does border some deer, elk and sheep range, and some precaution or rerouting may be necessary to avoid conflicts with game animals.



Blue Ribbons of the Big Sky Country
Areawide Planning Organization

March 8, 1976

RECEIVED
MAR 9 1976
MONT. DEPT. OF NATURAL
RESOURCES & CONSERVATION

Mr. Albert C. Tsao, Administrator
Energy Planning Division
Montana Department of Natural
Resources and Conservation
32 South Ewing
Helena, MT 59601

RE: Draft Environmental Impact Statement: Clyde Park - Dillon
161 Kilovolt and 69 Kilovolt Transmission Lines

Dear Mr. Tsao:

Blue Ribbons of the Big Sky Country APO is a water quality planning agency created under Section 208 of the Federal Water Pollution Control Act Amendments of 1972 (PL 92-500). Our planning area encompasses the Gallatin and Madison River drainages in Gallatin and Madison Counties. We appreciate the opportunity to comment on the subject Draft Environmental Impact Statement as a substantial portion of the proposed Transmission Facilities traverse our project area. However, as our study program officially got underway on February 1, 1976, we are somewhat limited in our input.

In our review of the Draft Environmental Impact Statement, we looked principally at Section 7.2, Impact on Stream Sedimentation. We feel that you have adequately identified the impacts as we presently know them. However, we would like to particularly emphasize our concerns as it relates to the Ennis-Big Sky Segments. It is obvious that construction and subsequent maintenance of this segment would have an infinitely greater impact on water quality than would the construction of the alternate Bozeman-Big Sky Segment which has the advantage of currently existing construction and maintenance access by U.S. Highway 191. We trust that you will consider this along with all of the other factors being evaluated in your consideration of these alternates.

We will be intensively studying water quality and related land use in our project area for the next two years. We hope to better delineate water quality problem areas and to formulate management guidelines to minimize the land use impacts on water quality. We would welcome the opportunity to review the selected route for the subject facilities and to suggest or comment on construction methods and techniques to minimize sedimentation.

Post Office Box 337 35 E. Mendenhall, Suite 206 (406) 587-0629 Bozeman, Montana 59715

Once again, thank you for your opportunity to comment. Please do not hesitate to contact me should you have any questions.

Very truly yours,

JOEL A. SHOUSE, P.E.
Executive Director

JAS/ykm

Comments on the

Clyde Park--Dillon 161 KV and
69 KV Transmission Lines DES

RECEIVED
MAR 16 1976
MONT. DEPT. OF NATURAL
RESOURCES & CONSERVATION

Submitted to

Energy Planning Division
Montana Department of Natural
Resources and Conservation

by

Thomas [illegible] Power
Assistant Professor
Department of Economics
University of Montana

March 15, 1975

I Comments on the Ennis to Big Sky Section [illegible] Transmission Line

A. Montana Power Company (MPC) projects that the demand for electric energy at the Big Sky resort will increase at a 27% per year rate during the period 1974-1981. This will increase the peak load over five fold in seven years and lead to a load in 1981 that is even larger than the current peak load in the entire Bozeman area and only slightly larger than the projected Bozeman area load in that year.

Such a projection about the likely level of real estate sales and commercial ski business is nearly impossible to evaluate. The national news has contained several stories about the difficulties ski resorts are now having. Big Sky, itself, has had to be refinanced and reorganized. The projections MPC provides are based on its and Big Sky's hopes not on fact or analysis. Business hopes may not be a very firm basis upon which to permanently commit unroaded wildland resources.

B. Big Sky chose an isolated location, surrounded on three sides by unroaded wildlands and served only by the Gallatin corridor. In so doing it accepted the limited and uncertain access the topography imposes on it. Such a location will raise its costs in many ways. One way is that electric service will be less reliable (and also, no doubt, so will newspaper, milk, and mail delivery). It is not clear that the cost of compensating for the location Big Sky chose should be passed on to the general public via either the premature destruction of a potentially valuable wildland resource or higher rates to pay for the multiple hook-up Big Sky desires. Big Sky is perfectly capable of providing its own back up system during interruptions of its Gallatin corridor service.

All people who choose to locate in isolated areas do not have a justifiable "need" for service of the same dependability as that available to people living in built up urban areas.

The PSC recognizes this point. The voltage standard set for large private users is not specified by the PSC; it can be anything the contract between the user and the utility specifies. Also, the PSC regulations allow: "A greater variation of voltage than specified above may be allowed...in areas where customers are widely scattered." (p. 37, section c).

It seems clear that the PSC voltage standards do not have to apply to private developments such as Big Sky.

C. The Department's comments on pp. 282-283 suggests that any attempt to evaluate the costs imposed on the public or other MPC customers by a large development like Big Sky is bound to fail because the problem is a "can of worms." The analysis of who receives the benefits, who bears the costs of a particular project is a very important part of any analysis which seeks to study the rationality of a major committment of resources. The Department cannot shrug off the responsibility for this type of analysis just because it is difficult. Tools are available for this sort of analysis. They have been put to use in analyzing a broad range of public projects. To dismiss the concern as if it were not worth considering would be hard to justify, especially on the part of an "energy planning" office.

D. If the word "need" is to have any meaning, wasteful or inefficient use of electric energy cannot be treated as just another load on the MPC system. If as is suggested on page 30, the Department feels that the type of energy use at Big Sky is extravagant or partially wasteful, that certainly must change its judgement about "need".

If the Department does not have the authority itself to require efficient use of electric energy, it should recommend corrective action to state agencies that do have such power or recommend legislation to the legislature. This should be part of the "alternatives" analyzed.

E. In commenting on the "wedge hypothesis" (pp. 281-282), the Department states that that hypothesis deals "with the future developmental consequences of the line rather than the line itself." I cannot tell if this is meant to suggest that that is a flaw in the "wedge hypothesis" and, therefore, a way of dismissing it. It certainly should do neither. The Department is committed to analyzing the long run consequences of a project such as this. What other point is there to the whole Utility Siting and Environmental Impact Analysis procedure ? Such long run consequences are much harder to predict with certainty, but they certainly cannot be ignored in the process of energy planning.

II Comments on the Upper Yellowstone and Yellowstone National Park Load

A. Figure 3-3 indicates that Yellowstone National Park use 1969-1974 grew at a 1.6% per year rate. (This assumes that the "Mammoth-Park-50kv" figure indicates the full load going into the Park through that corridor. If that assumption is not correct and that figure has to be added to all of the other "park" figures, the growth rate would be 2.4% per year, but the total load would be far higher than indicated elsewhere in the DES.) Table 3-11 indicates a projection for Yellowstone Park which begins with a figure for 1973 which is 36% above the 1974 figure given in Figure 3-3; the 1974 projection is 46% above the 1974 data. The projection then indicates an expected rate of growth of 7.4% per year. No explanation is offered for this sudden break from the past pattern. One is needed before these projections can be accepted. Since this makes up almost half of the load carried on the Paradise Valley line, the projections of the Park's use is important in judging what modification of transmission facilities will be necessary in the future.

III General Comments

The Energy Planning Division, as a result of its studies of energy needs is in a good position to assist both the Public Service Commission (PSC) and the Legislature in determining what changes in regulation would assist in rational energy planning. The Deaprtment should not avoid this opportunity and obligation simply to avoid stepping on toes elsewhere in state government.

One alternative to constantly expanding energy production and distribution facilities is a rate structure and energy efficiency standards which encourage conservation. Montana has neither. Its rate structures do not signal to electric consumers the full incremental cost of supplying them with additional electricity. As a result, consumers are not forced to seriously consider the full costs of their use of electric energy or encouraged to eliminate waste.

Thus one alternative that the Department should formally consider and discus is a conservation oriented rate structure. Another is

efficiency standards for buildings and appliances. To avoid considering them because the Deaprtment does not have the power to implement or enforce them is to undermine the logic and intent of the impact analysis and justify it with a bureaucratic excuse. The Department is in a good position to consistently remind the state that it is ignoring one of the primary causes of the constantly increasing demand for generating and transmission facilities.

Further, given that the Montana Environmental Protection Act was modeled on the National Environmental Protection Act, federal court interpertations of NEPA are applicable to the Montana statute. The federal precedent is that lead agencies have a legal obligation to consider alternatives even if they lie outside of the statuatory purvey of that agency. The courts do not support the truncating of environmental analysis along bureaucratic lines.

IV Conclusions

Given the uncertainty about just what load will develope at Big Sky and given Big Sky's choice of an isolated location, the most prudent course of action would be the one which committed the least resources in the process of up grading the electric service available to Big Sky. A 161 KV tangent-single circuit line built along the existing right-of-way in the Gallatin Canyon would seem to fit this perscription.

RECEIVED
MAR 18 1976
MONT. DEPT. OF NATURAL RESOURCES & CONSERVATION

Page 3 of D. T. M. Panel's Comments

the Seasons
BIG SKY, MONTANA
59716

P.O. Box 85
Telephone: (406) 995-4774
(406) 995-4784

March 12, 1976

RECEIVED
MAR 15 1976
MONT. DEPT. OF NATURAL RESOURCES & CONSERVATION

State of Montana
Department of Natural Resources
32 S. Ewing
Helena Montana 59601

RE Dillon-Clyde Park Transmission Line

Gentlemen

As part of the West Fork community we are in favor of the Cedar Creek route for the transmission line from Dillon to Clyde Park.

We are a total community consisting of a State Fire Marshal approved Volunteer Fire Department, both Catholic and Protestant church services, grocery stores, post office, restaurants, lounges, lodging facilities, service station, and recreational facilities. We, as residents of this year-round community, are just as deserving of quality services as other Montana towns.

The comfort of our citizens and the efficiency of our businesses are very dependent on adequate and uninterrupted electrical service. The Cedar Creek loop would insure our community of this vital energy.

Our thanks for your consideration of our needs.

Sincerely

Frank Murdoch

FRANK MURDOCH
President

03 17 71

American Contract Bridge League

Office of the Director

District 18

Robin B. Mac Nab
Farmers Insurance Building
Ninth and Mendenhall
Bozeman, Montana
(406) 587-4193

RECEIVED
MAR 17 1970
DEPT. OF NATURAL
RESOURCES & CONSERVATION

National Headquarters
125 Greenwich Avenue
Greenwich, Connecticut 06830
(203) 661-5090

821 West Mendenhall
Bozeman, Montana

Mr. Helver Tsao
Energy Planning Division
Montana Department of Natural Resources
32 South Ewing Street
Helena, Montana 59601

Dear Mr. Tsao:

I have just talked with you by telephone and this letter is being mailed to you at your suggestion - the earliest I could have mailed it since I returned only last night from a 10-day stay in Kansas City and at 1 P.M. to-day from Helena. I had neither heard nor read of any study being made, nor any hearing being scheduled relating to alternate power routes up the canyon at this time.

I had knowledge only this afternoon about an hour ago when I received a call from a Mr. Mike Sierz who apparently is trying to secure input for a recommendation from your group and who on that account happened to telephone me.

Of course, most of us up the Gallatin Canyon have known for a considerable time that BIG SKY and possibly West Yellowstone were going to need additional power. That is not new; but any word of a fresh hearing or study was. We thought the matter had been settled.

Speaking first as a landowner:
I have five (5) acres on the highway in the Gallatin Canyon between Logger Creek and Hell Roaring Creek - about 25 miles south of Bozeman. I have perhaps $125,000 invested in this property. Mrs Mac Nab and I also own 1601 acres on Mill Creek in the Madison County area which is adjacent to the proposed Jack Creek routing to BIG SKY. As landowners in both areas it would seem ridiculous to select anything but the Jack Creek routing to BIG SKY.

So much for our personal viewpoints - though I would also want you to know that I am a stockholder of the Montana Power Company.

Now, for another closely related matter.
I am also secretary for STORM CASTLE HEIGHTS, a trust, which owned seventy acres (70) directly on Highway 191 within the Gallatin Canyon and within the same Hell Roaring Creek drainage I have already cited.

American Contract Bridge League
Office of the Director
District 18

Robin B. Mac Nab
Farmers Insurance Building
Ninth and Mendenhall
Bozeman, Montana
(406) 587-4193

National Headquarters
125 Greenwich Avenue
Greenwich, Connecticut 06830
(203) 661-5090

2- Halver Tsao

On February 13,1976 we sold to a Mr. Michael H.Ankeny of3517 Hennepin Avenue in Minnespolis, Minnesota this 70-acre tract as owned by the trust for a very substantial amount of money. He also purchased 80 acres directly behind this trust tractf for a substantial amount of money. His intentions are to put but a single home on the 150 acres.

Mr. Ankeny was torn in his decision as between purchasing these two tracts or the Chet Huntley home at BIG SKY, but selected ours when we were able to assure him that any increase of power lines or equipment would NOT go up the Gallatin Canyon; that it would be routed cross country through wilderness area from Jack Creek.

Our source for this information was the president of the Montana Power Company, Mr. John Cromer. On a football Saturday late in October and here in Bozeman Mr. Ervin D.Hintzpeter and I talked with Mr. Cromer at halftime in the Reno H.Sales pressbox. We have both known Mr. Cromer for a substantial number of years.

Mr. Cromer advised us at that time that there was no way whatsoever that the type of line necessary for the power increase at BIG SKY as well as the community of West Yellowstone could be brought up the Gallatin Canyon. He gave us a myriad of reasons which I have in my files,but amongst them I recall that the equipment needed would be unsightly,but more importantly that it could not be done because standby power equipment could not be provided to BIG SKY and West Yellowstone during any interim in which such a line were built.

Based upon this assurance we so notified Mr. Ankeny and he has in the interim purchased this property.

You have asked that I list the members of the trust for whom I am entitled to speak. They are as follows:

Mr. Vern Harris, Attorney at Law, Horsky Block Building
Helena, Montana
Mr. and Mrs David L.Jackson, Attorney-At-Law, Horsky Block Bldg
Helena, Montana
Mr and Mrs Ervin D.Hintzpeter*
Castle Crags, Gallatin Gateway, Montana
1940 Broadway, San Francisco, California

American Contract Bridge League
Office of the Director
District 18

Robin B. Mac Nab
Farmers Insurance Building
Ninth and Mendenhall
Bozeman, Montana
(406) 587-4193

National Headquarters
125 Greenwich Avenue
Greenwich, Connecticut 06830
(203) 661-5090

3- Halver Tsao

Robin andMelborne Mac Nab
1012 South Tracy, Bozeman, Montana
Mr and Mrs Arthur Overturf
521 West Cleveland, Bozeman, Montana
Dr and Mrs John Strizich, 1500 Cannon, Helena, Montana
Dr and Mrs A.L.Vadheim, 521 South 10th Street, Bozeman, Montana
Edna P. and F.B.Welsh, Box 1216, Billings, Montana

* Mr and Mrs Hintzpeter are presently on a world cruise and will not return to Montana until June of 1976. I have power of attorney from Mr. Hintzpeter to represent him on all matters relating to the Storm Castle Heights trust and property.

Aside from my personal objections as well as those of the trust, the landowners in our immediate Hell Roaring-Logger Creek area will be violently opposed to any further desecration of the Gallatin Canyon. These would include:

Mr and Mrs E.Hintzpeter (as above). They have a $250,000 home immediately on the highway encompassing about 1 3/4 acres.

Mr and Mrs E.Hintzpeter Jr., Es-Crow Agency, Bozeman
Mr and Mrs Junior Tschache, 103 South 8th Street, Bozeman
Mr and Mrs M.DeNike , Kent, Ohio
Mr and Mrs David deLap, 825 South Grand, Bozeman, Montana
Mrs Amy Moore,120 West Garfield, Bozeman, Montana
Mr and Mrs Russell Thorson, Wait Insurance Co., Bozeman,Montana
Mr and Mrs Howard Wallace, Gallatin Gateway, Montana
Mrs Ethel Seifert, Gallatin Gateway, Montana

It is almost ridiculous to try to list all of the resident landowners in the Canyon who would be in opposition. In a week I can get you a petition with 300 landowners on it; and you would undoubtedly know of this if they were aware that a Gallatin Canyon routing were being so much as considered.

I also represent Dr and Mrs Roland Scherer who are further up the Gallatin Canyon and within a distance of 1.9 miles of the BIG SKY entrance with 102 acres but who are presently in Green Valley, Arizona. They would be appalled that such a routing were being considered.

American Contract Bridge League
Office of the Director
District 18

Robin B. Mac Nab
Farmers Insurance Building
Ninth and Mendenhall
Bozeman, Montana
(406) 587-4193

National Headquarters
125 Greenwich Avenue
Greenwich, Connecticut 06830
(203) 661-5090

4- Mr. Halver Tsao

This has been done hurriedly since you stated that time was of the essence. In any event I would very much appreciate being totally advised by your office at this address of any considerations, hearings , or opportunities to provide input into this matter.

Respectfully,
Robin B.Mac Nab
821 West Mendenhall
Bozeman, Montana

cc: Ervin D.Hintzmeter
Michael H.Ankeny

02 25 03

RECEIVED
FEB 25 1976
MONT. DEPT. OF NATURAL RESOURCES & CONSERVATION

McAllister, MT 59740
February 23, 1976

Energy Planning Division
Albert C. Tsao, Administrator
Dept. of Natural Resources & Conservation
Helena, MT 59601

RE: 161KV Transmission Line from Clyde Park to Dillon

Dear Mr. Tsao:

In regard to the above referenced power line, we strongly oppose the proposed route through our property in Madison County (L-M-N-O Section of Corridor map.)

In studying the impact statement and maps furnished by the Montana Dept. of Natural Resources & Conservation, we find that the propsed route comes directly through property we own and lease. We also understand that a sub-station is to be placed on this location.

Our ranch located in Madison County, in a remote area, is very scenic and secluded. We enjoy this seclusion and have withstood many disadvantages to preserve it. Therefore, we do not appreciate the fact that Montana Power may disrupt our efforts by construction of an unsightly transmission line directly through the land plus building a sub-station.

After attending a public meeting in Ennis, MT regarding this line, we feel that the apparent reason for this line is to provide service to Big Sky. The immediate needs of our valley are not over-extended. Therefore, doesn't it make more sense to construct this line up the Gallatin, where a line all ready exists? It was stated at the meeting by one of the Montana Power officials that the cost of construction - if the line were located in the Gallatin - would be considerably less but they had not been able to obtain a right-of-way from the Forest Service. Why?

We feel that our rights as private land owners should be considered!!

Thank you for your attention and consideration.

Sincerely,

Byram D. & Donna L. Owens
Box 130
McAllister, MT 59740

BDOLdo

03 09 06

JAMES R. WOLF
6329 MARCHAND STREET
PITTSBURGH, PA 15206

March 5, 1976

RECEIVED
MAR 9 1976
MONT. DEPT. OF NATURAL RESOURCES & CONSERVATION

Department of Natural Resources
State of Montana
32 South Ewing
Helena, Montana 59601

Gentlemen:

I am writing with regard to the proposed transmission line from Dillon to Clyde Park, as reported in the High Country News of February 27, 1976.

I understand that this facility would cut through an outstanding scenic area where I hiked in 1974. The purpose of my trip was to scout a possible alternate route for the projected Continental Divide Trail, and I concluded that a scenic route through the Tobacco Root, Madison, and Gallatin ranges should be part of the national trail system.

Next week I will present testimony to the Subcommittee on National Parks and Recreation of the House Committee on Interior and Insular Affairs, which is holding oversight hearings. My statement will emphasize the splendor of the area involved here, as follows:

> "The Trail drops down to the valley of the Madison River, passing the village of McAllister and the broad expanse of Ennis Lake. It climbs to the crest of the Madison Range and miles of ideal backpacking country stretching from the edge of the Spanish Peaks Primitive Area southward to the tableland of Flattop Mountain with its inspirational views. The splendor of this area is truly of national park quality."

Please send me a copy of the draft environmental statement on the project. But in the meantime, please accept my strongest objections to any intrusion into this pristine area - especially since there may be a national interest in the area involved. Kindly include these comments in the record of the public hearings.

Very truly yours,

James R. Wolf

03 15 17

RECEIVED
MAR 15 1976
MONT. DEPT. OF NATURAL RESOURCES & CONSERVATION

P. O. Box 825
Bozeman, Mt. 59715
March 12, 1976

Mr. Albert C. Tsao, Administrator
Energy Planning Division
Montana Dept. of Natural Resources &
Conversation
32 South Ewing Street
Helena, Montana 59601

Dear Mr. Tsao:

The Bridger Canyon Property Owners Association feels that the current 161 K.V. route from Bozeman to Clyde Park or RSUV as designated in the Report has an established means of ingress for construction of an additional line which would cause minimum environmental impact on the existing vegetation and watershed. The visual impact would be minimum if the proposed new line were to parallel the existing route. A new line on the RSTUV or RSTV route would produce major visual impact from the cutoff road all the way up Jackson Creek, but even more important, the negative impact on vegetation and water quality in the Jackson Creek and East Gallatin drainage would be tremendous.

The Bridger Canyon Property Owners Association strongly supports the RSUV route and would take a very strong negative position toward the RSTUV or RSTV route.

We would appreciate being kept informed of any decisions on the new 161 K.V. line route between Bozeman and Clyde Park due to our involvement in the Bridger Canyon Zoning.

Sincerely,

Richard G. Wike

RICHARD G. WIKE, Chairman
Bridger Canyon Property Owners Association

RGW:sld

03 10 04

1105 S. Tracy
Bozeman, Montana 59715
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MONT. DEPT. OF NATURAL RESOURCES & CONSERVATION

Energy Planning Division
Montana Department of Natural Resources
Capitol Station
Helena, Montana 59601

Dear Sirs:

I am writing relative to your draft EIS on the Montana Power Co. proposal for the Dillon-Clyde Park power line hook-up.

First I wish to compliment the department on the tremendous amount of work and thoroughness which went into the statement. It is an almost overpowering document. For that reason I would suggest relegating some of the less relevant material especially the endless tabulations to appendix status. I think it would help keep the focus better.

Because of the constraints of time I am unable to give the whole EIS the close attention it deserves. So I will concentrate on portions of particular interest to me - vis. the impact of the proposed power lines on wild lands and the National Park.

Certain portions of the EIS such as the analysis and discussion of social attitudes appear to me to set a new standard of perception and articulation. Other portions such as the discussion of "needs" are surprinsingly non-perceptive and perpetuate the moldy American myth that almost any demand or whimsical desire constitutes a "need." ("your slightest wish is my command" syndrome.)

On page 12 you mention Big Sky's "needs." And then on page 30 there is a rather plaintive paragraph suggesting that a change in Big Sky's developmental philosophy and attitude on energy conservation could change those needs. In other words you recognize that many of the "needs" are really "wants" but you don't say so, and you don't distinguish between the two. This is an important job undone.

I am sure Big Sky has genuine power needs if it is to operate but, like you, I am also sure that those needs are well buried under a big bundle of wants and unrealistic growth projections. Everyone knows that a high class operation like Big Sky depends upon a liberal expenditure of energy. More fundamentally, though, it depends upon a surplus economy and people with quite a few extra dollars to spend on a second (or third?) home and other expensive forms of fun. Everyone knows that the American economy has been riding high on a lavish use of all resources especially energy. And almost everyone knows that America is now moving into an era of resource shortage - especially energy shortage. This is going to bite into a luxury business like Big Sky more quickly and deeply than they ever anticipated at the time they made those growth projections which you quote - almost as though they were firm facts. Not only is Big Sky unlikely to grow as advertized but if it is to avoid boom, bust, and ghost town status it will have to move quickly into resource conservation with vigor and a clear eye.

On page 30 you seem to throw up your hands about helping Big Sky in this difficult job of changing philosophy. I disagree. By denying the power line and encouraging on-site generation, and use of alternative energy you would profoundly influence the situation in the direction you seek. There is nothing like having to cook up your own electricity to develop an awareness of things like stack emissions, noise pollution, visual pollution and the desireability of turning the thermostat down, using insulation and long underware. If Big Sky can make the change from a lavish

luxury game to an energy conservative, perhaps more primitive but still attractive recreation enterprise they might just keep going in good style.

My second concern is the proposed corridor for the powerline from Ennis to Big Sky. Having watched power companies, highway departments and some big government bureaus for many years I subscribe whole heartedly to your "wedge hypothesis." (page 281) The so called "terminal" at Big Sky is a temporary stepping stone to Paradise Valley via Porcupine, Buffalohorn and Tom Miner as was stated in the original plan. If the first step is taken the rest will follow in due time whether or not Big Sky survives. Much of that corridor including some of the first stretch from Ennis to Big Sky is through roadless areas that should be up for wilderness candidate study. It is clearly against the intent of the Wilderness Act to push powerlines and other development through such areas at this time. For all these reasons I am strongly opposed to the first step - the direct line from Ennis to Big Sky.

Beyond legal intents, however, I think it is time for all of us - not just Big Sky - to stop thinking that we have taken care of our garbage when we sweep it under the rug. If we must have powerlines let us put them where corridors already exist instead of hacking up more beautiful wild country just to put them (only for the moment) out of sight and out of mind. The consequences of our acts should be very much on our minds these days if we are going to deal successfully with the coming shortages.

Finally I wish to comment briefly on the needs for power in Yellowstone Park. There is surprisingly little documentation for this, considering the volume spent on Big Sky.

A few years ago I attended some public meetings in which Yellowstone Park presented long range plans. As I remember those plans included the gradual phasing out of elaborate housing and hotel facilities and restoring the area to a more primitive condition. I do not recall any time table for this and I have no idea if they have even started. Your Figure 3.3 shows a significant drop in peak power demand from 1973 to 1974 for all areas in the park and all fringe areas except Gardener. Perhaps this is a finger pointing the future. In any case maybe now is a good time to encourage implementation of this master plan by denying further energy growth for the Park at what is an environemtnal cost to Montana.

Obviously all these statements represent my opinions, my beliefs, and my ideas of what constitute wise use of resources and quality environment. Thank you for the opportunity to comment.

Sincerely,

Charles C. Bradley

Charles C. Bradley

III.D. Department Responses to Public Comments

The letters published in the previous section serve as samples representative of the public response received on this project. The Department does not respond here to every question posed in every letter. Questions not individually addressed in this section were not ignored; rather, they were considered as a whole in the preparation of this Final EIS. The Department's responses are divided into five categories, as presented below.

III.D.1. Engineering

The following discussion is in response to the applicant's comments regarding engineering-related issues.

The applicant remarked that proper consideration was not given in the need analysis to the Bozeman and Upper Yellowstone Valley areas. The voltage drop problems in the Yellowstone Valley and Yellowstone Park areas, as well as the reliability problem at Bozeman, are discussed in Chapter Three, section 3.3, "System Reliability and Problem Services Areas." This discussion appears on pages 39-45 of the Draft EIS.

The applicant correctly states that the 50 kV voltage level of the transmission system in the Upper Yellowstone Valley in Figure 3-4 of the Draft EIS is out of date. The same point applies to the map entitled "Existing Land Use -- Linear Patterns -- Utilities." found between pages 12 and 13. The written material in both the original (June 6, 1974) and amended (July 1, 1975) Clyde Park-Dillon application indicates a 69 kV line from Livingston to Gardiner. However, maps in both applications, which were the source of the "Linear Patterns -- Utilities" map, indicate a 50 kV level for this line. Load flow studies utilized by the Department in analyzing the need for a new line from Clyde Park to Gardiner did use a 69 kV level.

The applicant is correct in stating that the Draft EIS did not discuss the practical problems associated with upgrading the existing 69 kV line in the Gallatin Canyon. Studies completed at the time of the Draft's writing indicated only that " . . . upgrading the existing 69 kV line to 161 kV and building no other new lines to Big Sky are feasible from an engineering viewpoint in that [it] could provide the projected necessary increase in power capacity" (Emphasis added). Additional analysis by the Department indicates that, because of the increased expense, the power outages, and the increased radio and television interference, upgrading would not be the alternative producing the least environmental impact in the Gallatin Canyon (see section I.C.3.).

A misunderstanding arose over a statement in the Draft EIS in section 4.4.3.: "The existing 50 kV line from the hydro plant to the Bozeman Southside Substation could be replaced by a 161 kV line." The applicant responded that "There does not exist and there are no plans in the next ten years to take a 161 kV line to the Bozeman Southside Substation." The intent of the statement made in the Draft EIS was that, if a 161 kV line from Ennis to Bozeman were constructed, the existing 50 kV line from the Madison hydro plant to the Bozeman Southside Substation could be removed. The 161 kV line could then be routed to follow the old 50 kV line right-of-way. Any implication that the 161 kV line should be connected to the Bozeman Southside Substation was not intended.

The applicant disagreed with the statement made on page 60 of the Draft EIS that upgrading the Gallatin Canyon 69 kV line to 161 kV would increase reliability at Big Sky. The Department's response is that upgrading the existing line through the Gallatin Canyon would increase service reliability if the Dillon-Big Sky 161 kV line is built in the manner proposed by the applicant. Assume the peak load at Big Sky grows beyond the capacity of the existing 69 kV line, as is projected by the applicant. An outage of the new 161 kV line could then cause unacceptable voltage drops at Big Sky. If the existing line is upgraded from 69 kV to 161 kV, then an outage of the new line would not result in the same voltage drop problems. Increased service reliability does result from the elimination of potential voltage drop problems in the event of an outage of one transmission line. Upgrading lines can therefore, in some cases, improve service reliability.

III.D.2. Construction Practices

A comment was made by the Montana Department of Health and Environmental Sciences that ". . . construction and vehicular activity can cause dust problems . . ." during transmission line construction, and it suggested the use of dust abatement oil.

Dust problems caused by construction of this transmission line are expected to be negligible except along temporary access roads. The use of dust oil on these roads would add greatly to the environmental impact of the project. Oil would inhibit plant growth and would result in a source of water and air pollution for a much greater time than if the roads were allowed (encouraged) to quickly revert to their original condition.

III.D.3. Natural Environment

III.D.3.a. Vegetation

The U.S. Forest Service (USFS) has suggested that "recovery rate" be defined. A three-fold definition of recovery rates in forest and rangeland is discussed on p. 166. It should be noted that Elliott, Pfister, Arno, and the Department all fundamentally agreed on the ratings, and that all suggestions from Pfister and Arno were incorporated into the ratings.

III.D.3.b. Fauna

(i) Peregrine Falcon

The comment was made by the USFS that "The conclusion that pesticides caused the decline of the falcon is a rather controversial deduction -- this is supported by several authors but is probably more accurately an opinion."

The U.S. Bureau of Sport Fisheries and Wildlife, in the 1973 "Red Book" (pages 128 and 129), cites the following reasons for the decline of the peregrine falcon:

> All field and laboratory evidence points to cumulative effects of chlorinated pesticides and their breakdown products obtained from its prey, especially DDT and DDE, which have increased adult mortality and reduced production of young by affecting reproductive mechanisms and causing eggs to become thin-shelled or otherwise nonviable.

The deleterious effects of DDE and DDT-family residues upon falcons and other raptors have been well documented by Anderson and Hickey (Proc. 15th Intern. Ornithol. Congr.: 514-540, 1972), Cade and Fyfe (Can. Field-Nat. 84: 231-245, 1970), Cade et al. (Science 172: 955-957, 1971 and Condor 70: 170-178, 1968), Enderson and Berger (BioScience 20: 355-356 1970), Hickey (ed.) (Peregrine Falcon Populations, Their Biology and Decline, Univ. Wisconsin Press, Madison, 1969), Lincer et al. (Can. Field-Nat. 84: 255-263, 1970), Ratcliffe (Nature 215: 208-210, 1967), and numerous others.

(ii) Elk

The USFS pointed out that in southwest Montana most elk movement to lower elevations probably occurs in October and later. Peek and Lovaas (J. Wildl. Manage. 32: 553-557, 1968) and Johnson (J. Wildl. Manage. 15: 396-410, 1951) state that downward movement of the Gallatin elk herd begins in August, with the elk usually appearing on the winter range in November or December. This is shown in Figure 6-8 of the Draft EIS.

(iii) Grizzly Bear

A comment was made by the USFS suggesting that references to grizzlies requiring a "wilderness-like area" be deleted, and that the area delineated on the grizzly habitat distribution map be reduced to a smaller size, to conform with a USFS inventory. (A map was also furnished.)

The Draft EIS makes no reference to grizzly bears "requiring a wilderness-like area." Rather, it states that "Today grizzly bears in the contiguous United States are primarily restricted to remote, wilderness-like mountainous areas" (page 208). Although "wilderness-like areas" and preferred habitat of grizzly bears share many characteristics, "wilderness-like" habitat as perceived by man may not necessarily be the same as grizzly bear habitat as perceived by bears. Thus, it is irrelevant whether the North Fork region fits man's definition of "wilderness-like." Although it has been roaded and logged to some extent, the human ocpulation is low enough to permit resident grizzly populations. With this understanding, the term "wilderness-like" will be retained, describing areas having these characteristics as qualified on page 231 of the Draft EIS.

The map furnished by the USFS (Figure 1) shows ". . . the distribution boundary we [Forest Service] have inventoried . . ." being ". . . a result of recent study and deliberation." This map appears to be a connection of dots which includes as little area within the boundary as possible, while still including the sightings shown. It seems that the USFS considers the few confirmed sightings shown on the map as the extent of grizzly bear distribution in the area. This is not the case. First, sightings indicated on the map represent only confirmed sightings made during 1973 and 1974. These sightings

were generally made incidentally to other pursuits, and were not the result of intensive field investigation. As such, they by no means delimit the distribution of bears in the area. An increase in either the time period or intensity of observation would almost certainly expand the boundaries of confirmed sightings, and, hence, known distribution. Second, grizzly bear track locations or unconfirmed sightings have not been plotted on this map. Evidence of grizzly tracks in the Spanish Peaks area, which lies outside the USFS boundary, has been cited in the Interagency Grizzly Bear Study Team's Annual Report (1974: 23).

There seems to be confusion in the USFS comment regarding the definitions of "habitat" and "distribution." These are two different terms, and are discussed to some length on pages 211-212 of the Draft EIS. On page 212 is the statement: ". . . it should be realized that the boundaries of the general distribution of a species are not absolute." This applies to the boundary of "probable distribution" on the published "Grizzly Bear Distribution" map in the Draft EIS, as well as the suggested USFS changes. These lines are nothing more than lines of probability, as discussed on page 212 of the Draft EIS. The absolute or even probable distributional boundaries of the grizzly bear in this area are unknown--the USFS boundary represents one informed guess; the Department boundary, another.

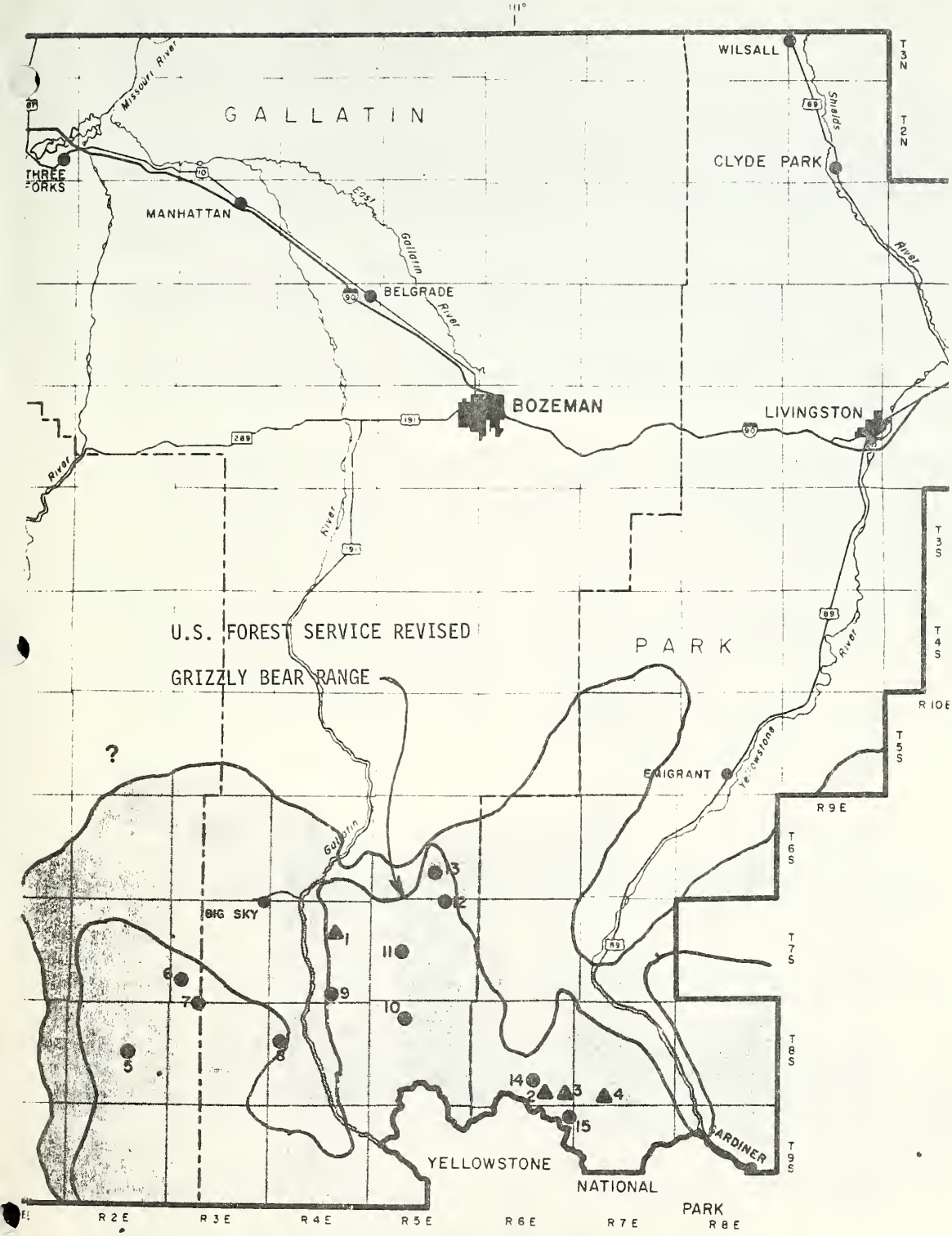
The important consideration is the distribution of suitable habitat. Where suitable habitat exists, chances are high that resident grizzly populations will be found. The area labeled "probable distribution" on the Department's map is an approximate outline of habitat areas appearing to be suitable for grizzly bears, whether known to be occupied or not. It is highly probable that future observation and study will reveal grizzly sightings throughout this area. In any case, it is unrealistic to assume that distribution or habitat stops precisely where marginal chance sightings were made (Viz. sightings nos. 1, 8, 9, 12, and 13 in Figure 1), or that the bears did not move when the observation ceased.

III.D.4. Cultural Environment

III.D.4.a. Wedge Hypothesis

The Draft Environmental Impact Statement (page 282) makes a comparison of the accuracy of the "wedge hypothesis" vs. the "power-equals-prosperity" viewpoint. The USFS states that this comparison is an opinion which is subject to professional differences.

Virtually all conclusions, scientific or otherwise, are opinions subject to professional difference or debate. To that extent, the USFS is correct. However, recognizing that point does not alter the veracity of the Draft EIS statement. Electric transmission lines do not directly lead to local prosperity, especially in the manner pictured by some development advocates. But power lines nevertheless can be an "opening" wedge, whether they are intended to be or not. With a transmission line, once built, the wedge has materialized. The heretofore undeveloped area suddenly experiences a partial development, and that fact will modify all subsequent development proposals, both in a legal sense and in a social or psychological sense.



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III.D.4.b. Socio-Economic Impacts

The applicant, questioning the citation of 1,762.42 acres being directly affected by the proposed transmission line, alleges that the current figure should be 3.1 acres (the combined area of the tower structures themselves).

The Department feels that, because of vegetation clearing in the right-of-way and because no sprinkler irrigation equipment or buildings may be built or placed within the right-of-way, the entire area of the right-of-way constitutes a direct impact. Thus, the calculation of 1,762.42 acres was made.

The applicant also questions a Draft EIS statement (page 277) that "The fiscal impacts of the transmission lines are minor and largely inconsequential."

The proposed facility will generate a few temporary jobs. Wage and salary payments would be small, in proportion to total aggregate earnings in the study area, and their effect upon the local economy would be correspondingly small. The proposal's potential contribution to the local tax base is unknown. However, the proportionate net addition to the tax roles would probably also be small, as it has been with similarly-sized facilities.

The Department has received comments to the effect that, before a need for an additional transmission line to Big Sky can be justified, evidence must be shown of its long-term financial stability. The Department does not have the responsibility or the resources to assess the long-term financial condition of Big Sky or any other community proposed to be served by new transmission lines.

III.D.5. Service Reliability

The following is in response to several comments, such as that from The Four Seasons, to the effect that Big Sky is a community like any other in Montana, and therefore deserves equal reliability of electrical services.

Although Big Sky corporation owns much of Big Sky, other private residences, churches, and private businesses have also been established there. In that respect, Big Sky is considered a community in a manner similar to other cities and towns in Montana. However, Big Sky differs from other Montana communities in one important aspect--location. Big Sky was voluntarily located in an isolated, mountainous area surrounded by roadless and undeveloped areas. The Big Sky site, when planned, had available one transportation and utility corridor, the Gallatin Canyon. By consciously choosing such a location, the Big Sky planners and those people voluntarily locating there ". . . accepted

the limited and uncertain access . . ." (Dr. Power 1976) imposed by the topography.

Social costs as well as benefits result from Big Sky's isolated, mountainous location. The benefits include clean air, serenity, beauty, and immediate access to skiing and other forms of outdoor recreation. The costs arise from restricted access, and include less reliable services--such as electrical supply--which must now be regularly supplied through the one existing corridor to Big Sky.

The significant argument with respect to Big Sky electrical service reliability is not that "Big Sky deserves the same reliability as other communities in Montana." The salient considerations for evaluating any request for increased reliability are: (1) What alternatives are available to provide the increase? (2) What are the economic, social and environmental costs of the alternatives? and (3) Who will pay those costs?

The costs associated with increasing reliability through an additional line to Big Sky would be the totality of costs associated with adding the line, not only in economic but in environmental terms. These costs would be borne by the individuals on whose property the new line would be located (including all U.S. citizens if public lands will be crossed), as well as society at large, due to aesthetic degradation and the potential public land uses foreclosed by the presence of a line. An alternative to building new lines solely to increase service reliability would be the purchase and installation of back-up generation facilities by the Big Sky Corporation. The costs of this alternative would be borne by the users of Big Sky.

Other comments, similar to those addressed above, have also contended that, without the increased reliability afforded by the applicant's "loop" proposal (i.e., connecting Big Sky to Dillon), economic hardship and loss of life may occur.

The Department has evaluated this argument and finds it insufficient to justify construction of a new line to Big Sky for the following reasons:

1) The Big Sky Corporation voluntarily began operations at its present location, and has continued to operate some four years, while being served by only one radial line. If a significant possibility for loss of life and/or economic losses results from one-line service, Big Sky management should not have opened an all-electric resort without first obtaining a two-line or loop service.

2) The Department has stated: "In situations where a power failure jeopardizes human life or public safety, such as in hospitals, airports, and communications systems, auxiliary power systems are always provided" (page 338, Draft EIS). The Department suggests that if, in the opinion of the management and people using the Big Sky resort, power outages pose a significant threat to human health, the management should purchase and install emergency back-up generation facilities. It should also be noted, in this context, that, even if the applicant's proposal is approved, the possibility of extended power outages would not be totally eliminated.

3) As outlined above, the existing transmission line serving Big Sky is being deliberately managed for less than maximum potential reliability (i.e., minimum power outage potential).

4) Construction of new 161 kV line to Big Sky, recommended by the Department to supply needed electrical capacity, will also significantly increase service reliability at Big Sky. The Department estimates that the reliability will increase by a factor of about ten (discussion on potential reliability included in the Addendum, section II.A.1.).

III.D.6. Impact Statement Preparation

III.D.6.a. Vegetation

The USFS has suggested that the vegetation inventory was more refined than necessary for adequate corridor selection. The USFS also contends that grouping habitat types prior to inventory would have saved time and money, and further suggests that another approach could have been to use the subsectional land unit mapping that the USFS provided.

The Department feels that habitat type inventory is very important in corridor selection. Productivity and recovery rates are valid concerns when evaluating corridors. The USFS-sponsored habitat type classifications are well suited to such evaluation, and constitute a generally accepted, ecologically sound method of land classification.

Department experience with the suggested subsectional land unit classification is limited, but the suitability of combining precipitation, lithology, and "structure" for corridor evaluation seems questionable. This little-known or untested system appears to be at a disadvantage when compared with using habitat types.

After the inventory was made, habitat types were grouped as to forest and range productivity and recovery rate. Post-inventory grouping is both more credible and more flexible than grouping prior to inventory.[1] Since habitat types cannot be grouped until they have been identified, it is not felt that early grouping could save time or money.

III.D.6.b. Fauna

A USFS statement, commenting on a portion of the Draft EIS dealing with long-term displacement of elk due to access roads (page 229), appears to criticize the authors for undue negativity. It should be noted that the Department, under the Utility Siting Act, is obligated to identify all potential negative impacts. The Department agrees that in some cases negative impacts, once identified, can be mitigated.

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[1] Pfister, R.D., Arno, S.F., Kovalchik, B.L., and R.C. Presby. 1974. Forest Habitat Types of Montana. Intmtw. For. & Range Exp. Sta./Region One, U.S.F.S. 213 pp.

III.D.6.c. Corridor Selection

The U.S. Forest Service made detailed comments critical of the corridor selection process and matrix used in this project analysis.

Matrices used in the past (e.g., the Colstrip transmission line proposal) should not be regarded as absolutes, and probably would not be applicable to all transmission line applications. Department personnel feel that the matrix used in the Clyde Park-Dillon study is an improvement over those of the past. Since the first matrix was developed, much thought and study has been given to transmission line impacts. Many hours of literature review, field observations, and staff discussions have refined the planning of the new matrix. To suggest that the line construction, operation, and maintenance activities were not considered separately is to misread much of the Draft EIS.

Social and economic concerns were not de-emphasized in this EIS as implied by the Forest Service. To a degree, all eight of the objectives on the matrix, expecially the land use and visual concerns, have social or socioeconomic implications. Those social or economic factors which are not geographically dependent upon the line location are not considered in the matrix or corridor selection process, but are considered in the total evaluation of the application.

The Bureau of Land Management made a comment on corridor selection suggesting that use of the terms "least" and "greatest" presents technical problems in discussing optimization criteria.

The Department feels the terms "least" and "greatest" are valid in the way they are used. The paragraph following the eight objectives as listed on page 293 of the Draft EIS points out that the overall best corridor is a compromise between the corridors selected solely upon the "least" and "greatest" objective aspects.

III.D.6.d. Sociology

The applicant has asserted that material in the Draft EIS regarding public concerns and attitudes (section 6.3.3.4. pp. 279-283) is philosophical, editorial and unfit for inclusion in an EIS.

Not only as a public agency is the Department interested in the concerns of Montana citizens, but it is also required to evaluate such concerns under the Utility Siting Act. Public viewpoints made known to the Department during the course of the environmental assessment were thus included. Concerns favoring, as well as criticizing, the proposal were discussed. As such, the Draft EIS's presentation and discussion of the various sociological issues surrounding the application is balanced, and seeks to outline citizen concerns in an objective manner.

Although the above-referenced section reported several subjective public concepts, ideas and symbols, this material is nevertheless important because humans, in contrast to other entities within the physical and biotic worlds, respond to and act upon such concepts, ideas and symbols.